ADDENDUM

TO THE

BRITISH PHARMACOPŒIA

PUBLISHED UNDER THE DIRECTION OF

THE GENERAL COUNCIL OF

MEDICAL EDUCATION AND REGISTRATION
OF THE UNITED KINGDOM

PURSUANT TO THE ACTS
XXI & XXII VICTORIA CAP XC (1858)
AND XXV & XXVI VICTORIA CAP XCI (1882)



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NOTICE

By Section 2 of the Medical Council Act, 1862, the exclusive right of publishing, printing, and selling the British Pharmacopeus is vested in the General Council of Medical Education and Registration of the United Lingdom

The British Pharmacopæia, 1932 superseded previous issues of the British Pharmacopæia, being for all purposes deemed to be substituted for such previous issues

This Addendum alters and amends the British Pharma copens, 1932 The General Notices and Appendices in cluded in the British Pharmacopeus, 1932, apply to all matter contained in this Addendum, unless the contrary is specifically stated

The Monographs of this Addendum have the same authority as that of the British Pharmacopæia, 1932, to which they are additional, or as that intherto possessed by Monographs which they now replace Monographs of the British Pharmacopoma 1932, which are amended by this Addendum have, as amended the same authority as that hitherto possessed by the Monographs before emendation.

PREFACE

TO THE ADDENDUM 1936 TO THE BRITISH PHARMACOPEIA 1932

Secrito 54 of the Veducal Act 1858 provides that the General Council of Veducal Education and Registration of the United Kingdom shall cause to be published under their direction a Book containing a list of medicines and compounds and the manner of preparing them together with the true weights and measures by which they are to be prepared and mixed and containing such other matter and things relating thereto as the General Council shall think fit to be called. The British Pharmacopeus and the General Council shall cause to be altered amended and republished such Pharmacopeus as often as they shall deem it necessary.

The term of office of the British Pharmacopeaa Commission which prepared under the general direction of the Council acting through the Pharmacopeaa Committee of the Council the sixth British Pharmacopeaa which was published in 1932 evpired on the 30th September 1933 and the Commission was reconstituted with effect from the 1st October, 1933 as follows—

A P BEDDARD M D (Clairman)

R R BENETT BSc
O L 1 S DE WESSELOW
DM
DM
D Henter MD
J A Gran MD
T Tickle B.Sc

The Sub Committee on the British Pharmacopæia of the Committee of Civil Research of which Lord Macmillan was Chairman, recommended, in the paragraphs of their Report (Cmd 3101 of 1928) which relate to the period of publication of the Pharmacopæia, that ten years should be regarded as a reasonable interval between successive issues. and that suitable provision should be made during these decennial intervals for supplementing the current issue by the publication of Addenda to the Pharmacopœia

The present Addendum, 1936, to the British Pharma copen 1932, is the first Addendum to the sixth British Pharmacopæia published in accordance with the recom mendations of the Sub Committee It has been prepared by the British Pharmacopæia Commission and approved by the Pharmacopæia Committee of the Council in the discharge of the duty entrusted to them by the Standing Orders of the Council to deal with all matters relating to the preparation and publication of the British Pharma copœia

The Addendum 1936, alters and amends the British Pharmacopœia, 1932, by the deletion of one article, by the addition of certain articles and preparations, and by the variation, in the light of knowledge which has since become available, of the monographs relating to other articles and preparations

The Pharmacopona Committee of the Council, in a Report made by it to the Council in accordance with the Standing Orders, has conveyed to the Council a cordial expression of its appreciation of the close and sustained labours which have been devoted to the important task of preparing the Addendum, primarily by the Chairman and Members of the British Pharmacopæia Commission, with their Secretary, Mr C H Hampshire, MB, BSc, and also by the numerous persons and bodies, both in this country and abroad, by whose collaboration that task has been facilitated in the various particulars specified in the Introduction to the Addendum

GENERAL MEDICAL COUNCIL OFFICE, 44 HALLAN STREET, PORTLAND PLACE, London, W1

THE BRITISH

PHARMACOPŒIA COMMISSION

- Chairman A P BEDDARD, M D, Consulting Physician to Guy's Hospital
- R R Bennett, BSc, Chairman of the British Pharmaceutical Conference, 1928 and 1929
- O L V S DE WESSELOW, D M, Professor of Medicine in the University of London
- J A Guy, MD, Professor of Pharmacology in the University of Oxford
- P HARTLEY, CBE, MC, DSc, Director of Biological Standards, the National Institute for Medical Research, Hampstead
- B F HOWARD, Vice President of the Institute of Chemistry, 1930-1933
- D Hunter, MD, Physician with charge of Out Patients to the London Hospital
- T TICKLE, B Sc , Public Analyst to the County of Devon
- Secretary: C. H HAMPSHIRE, MB, BSc.

INTRODUCTION

In the introduction to the British Pharmacopœia 1932 the suggestion was made that in order to keep the Pharma copœia more continuously in alignment with the advances in therapeutics and the ancillary Sciences it might be found expedient to issue from time to time a supplement to the Pharmacopœia. It is in accordance with this anticipation that the present Addendum to the Pharmacopæia has been prepared.

After the publication of the sixth British Pharmacopeeia in September, 1932, the Commission (1928-33) which had prepared that Pharmacopeia remained in office for a further year in order to collect and consider the comments made upon its work

In October, 1933 the present Pharmacopean Commission (1933-36) was appointed and after consideration of the various possible ways of keeping the Pharmacopean abreast of the requirements it is intended to meet decided that this could best be attained by the issue of an 4ddendum, which would be published as nearly as possible four years after the issue of the British Pharmacopean, 1932

The Commission appointed the following Sub Committees to assist --

1 CLINICAL COMMITTE—O L V S de Wesselow (Chairman), D Hunter (Vice Charrman), T Anwyl Davies, L S T Burrdl, A W Bourne, E Rock Carling, F R Fraser, A M H Gray, C F Hadfield, P H Manson Bahr, R Poster Woore, B T Parsons Smith, J A Ryle, J Forest Smith, E Sprawson, L J Witts

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 2 PHARMACOLOGY COMMITTEE J A Gunn (Chairman),
 J H Burn, A J Clark, Sir H H Dale, W J Dilling
 J W Treen
- 3 BIOLOGICAL PRODUCTS COMMITTEE—P Hartley (Chairman) Sub Committees —
 A Serological and Bisceriological Products—V D Alli
- A Serological and Bacteriological Products —V D Alli son A Fleming R A O Brien G F Petrie, W D H Stevenson
 - B Sterile Solutions -- V D Allison F H Carr, C E
 Coulthard, H Davis, N Evers R A O Brien
 C Accuracy of Biological Assays -- J H Burn Viss
- K H Coward J H Gaddum J O Irwan, G F Petrie, J W Trevan
- 4 PHARMACI AND PHARMACOGNOSI COMMITTEE -- R R
 Bennett (Chairman) Sub Committees -A Crude Drugs -- H Deane, F N Howes H O Mech,
 - J Small, T E Wallis

 B Extracts, Liquid Extracts and Tinctures -H Berry,
 - H Davis, F W Gamble T Wilson
 C. Waters, Infusions, Solutions Spirits and Syrups —
 - A J Jones, H B Mackie A R Melhuish, A L
 Taylor

 D. Continents and Muscellaneous Galencals H Brindle
 - D Ointments and Miscellaneous Galenicals —H Brindle,
 B A Bull, E S Peck H Skinner, J Smith

 5. George Consumers R. F. Howard
- 5 GEVERAL CHEMISTRY COMMITTEE —B F Howard (Chairman) Sub Committees
 - A Alkaloids and Alkaloidal Salts -T A Henry, H king, F L Pyman
 - B Organic Chemicals F H Carr, A J Ewins, H A D Jowett, H King W H Lannell, A D Powell
 - Powell
 C Inorganic Chemicals —T T Cocking C E Corfield,
 N Evers A J Ewins, J R Nicholls, A D

Powell.

- 6 PHARMACEUTICAL CHEMISTRY COMMITTEE -T Tickle (Chairman) Sub Committees -
 - A Essential Oils -C T Bennett, S W Bradley, T T Cocking C E Sage W H Simmons
 - Fixed Oils, Fats, Waxes, Resins and Soaps -E R \mathbf{R} Bolton, N Evers, J R Nicholls W H Simmons
 - C Assay of Crude Drugs and Galenicals -T T Cocking. N Evers, W H Linnell, A D Powell P A W Self (deceased)
 - D Tables Weights and Measures -J R Nicholls, V Stott, R J Trump
- 7 VITAMIN COMMITTEE -D Hunter (Chairman) A L Bacharach, F. H. Curr. Miss H. Chiek, Miss K. H. Coward, J C Drummond N Evers Miss E M Hume, Miss H M M Mackay
- S EDITORIAI COMMITTEE -A P Beddard (Chairman),
- J A Gunn D Hunter
- In preparing this Addendum the Commission has ad hered to the general principles followed in the preparation of the British Pharmacopæia, 1932, which are set forth in the Introduction to that solume

The Commission has reviewed the drugs which have been introduced or which have come into increased use since the publication of the British Pharmacopæia 1932, and has selected from them for description in this Addendum, those which have now become of sufficient importance in medical practice to require definition in the Pharmacongua But in making this selection the Commission has found it necessary to exclude, on account of proprietary monopolies or restrictions, certain drugs which otherwise might have been included

The Addendum includes-(1) New monographs, or changes in existing monographs, arranged alphabetically under new titles or under titles already in the Pharmacopœia (2) Additions to, or changes in the appendices of the Pharmacopæia

One monograph of the Pharmacopous Solution of Irradi ated Ergosterol, has been deleted and replaced by one describing a preparation of Calciferol

Four monographs, those dealing with Acriffavine Steril 1ed Water, Physiological Solution of Sodium Chloride and Cod liver Oil, have been rewritten. In the case of Cod liver Oil the changes are important, the antimony trichloride test has been deleted, and minimal requirements for vitaming A and D have been introduced.

Three antitoxins and two antibacterial sera are included in the Addendum. In each case the requirements described are in conformity with the Therapeutic Substances Act, 1925, and the Reculations made thereunder.

Three vitamins are described in the Addendum—Ascorbie Acid, Vitamin B₁ (in the form of an Adsorbate) and Calciferol For the first two of these biological assays are described. The vitamin D content of Calciferol, of the Solution of Calciferol, and of Cod liver Od is determined by the Biological Assay of Antirachitic Vitamin (Vitamin D) contained in the Appendix XV of the Pharmacopous as amended by this Addendim

In each of these cases the International Standard and Unit are adopted Certain other substances for which International Standards and Units are provided, however, have not been included β Carotene is not described, but its use as the standard for the determination of Vitamin A is adopted

For the assay of vitamin A in Cod liver Oil a biological method, and a spectrophotometric method are described. The latter does not measure the presence of vitamin A directly, but merely shows the presence of some substance having a physical property in compoin with vitamin A. This method does not guarantee that any or all of the substance estimated is vitamin A. Therefore the biological assay of vitamin A is to be regarded as decisive

Similarly International Standards and Units for some of the sex hormones are now available. Rapid advances in the production of alled compounds, having greater thera peutic effects, are however taking place and therefore, in view of the fact that the Pharmacopeeal standards must remain unchanged for some years it has not been thought advisable to include these substances

Since the publication of the British Phirmacopeas, 1932, the supply of the International Standard Digitals Powder, containing I Unit of activity in 0 I gramme, has been exhausted. There has now been substituted for it a new powder whose strength is such that it contains I Unit of activity in 0.08 gramme. The adjustments in the British Pharmacopeas, 1932, necessitated by this change, are made in this Addendum.

The changes in Pharmacopœial monographs are indicated by reference to the pages of the British Pharmacopœia, 1932.

In the course of the work of preparing this Addendum the Pharmacopona Commission has issued the following reports containing the recommendations made to it by the Sub-Committees.—

No 9 Collected Reports of Committees on Material Prepared for an Addendum to the British

Pharmacopena, 1932, Tebruary, 1936
No 10 Report of the Sub Committee on the Accuracy
of Biological Assays, August, 1936

In Appendix XV of the British Pharmacopœia, 1932, which deals with biological assays, no uniform method of expressing limits of error is followed, and in some instances no limits of error are stated. When the biological methods

xvi BRITISH PHARMACOPŒIA 1932 to be recognised in this Addendum had been agreed upon

assay and to advise how they should be expressed The Sub Committee dealt with the assas of the three vitamins the three antitioxins and the two antibacterial sera described in the Addendum together with that of vitamin D included in the British Pharmacopous 193° and amended in the Addendum but no recommendations relating to the other assays of the British Pharmacopous 193° were made to the Commission

A discussion of the data from which these limits have

the Commission appointed a Sub Committee to determine by modern statistical methods the limits of error of each

been calculated is published in the Sub Committee a report.
The method of expressing the limits of error is explained
in the General Notices under the heading. Errors of
Biological Assay. The limits of error calculated for
each method of assay are placed at the end of the descriptrop of the method.

each method of ussay are placed at the end of the description of the method.

In this Addendum some alterations are made in the sterilisat on procedures of the British Pharmacopean 1932. The instructions contained in the British Pharmacopean

1939 as amended by this Addendum are a compromise

between what is ideal from the point of view of the bacteriologist and what is capable of achievement under all conditions of dispensing.

In connection with the work of the Committees the

In connection with the work of the Committees the following papers describing research work undertaken at the request of the Commission have appeared —

The Strophanthin of Strophanthus Emini by I D
Lamb and S Smith
Sterilisation by Dry Heat at 150° with spec al reference

Sternisation by Dr.; Heat at 150° with spec al reference to Oils by C E Coulthard A Note on the Sternisation of Oils by R A O Brien

and H J Parish

TVII

- 'A Note on the Effect of Sterilisation on Solutions of Calcium Chloride' by C E Coulthard and G F Hall
- Hall

 'A Note on the Sternhanton of Injectio Bismuthi BP'
 by C E Coulthard
- 'The Relutive Merits of Maceration and Percolation for the Preparation of Timeture of Digitals by H. Berry and H. Davis
- 'The Preparation and Preservation of Morphine Injections' by H Davis
- 'An Improved Method for the Estimation of the Essential
 Oil Content of Drugs' by T T Cocking and G
 Middleton

From October 1932 to October 1933 the work of the Research Assistant to the Pharmacopoua Commission was carried out in the laboratories of the Pharmaceutical Society of Great Britain and the following papers were published—

- 'The Keeping Properties of Liquor Arsenicalis' by C M
 Smelt
- 'The Keeping Properties of Liquid Extract of Ergot'
 by E M Smelt
- 'Chemical Tests for Strophanthus by E M Smelt

 The Commission desires to record its thanks to the

Pharmaceutical Society for providing the necessary accommodation for these researches

In November, 1933, a laboratory for research on Pharma

In November, 1933, a laboratory for research on Pharma copenial problems was instituted in the building of the General Medical Council, and the following papers from it lave been published.

'A Note on the Sulphuric Acid Test for Liquid Parassin'
by C. H. Hampshire and G. R. Page

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'Notes on Some Pharmacopœual Tests—I Quinine Ethyl Carbonate, Atropine Sulphate, Potash Alum 4lous, Solution of Cresol with Soop' by G R Page

'The Determination of Camphor in Galericals by means of 2 4 Dimitrophenvlhydrazine' by C H Hampshire and G R. Pace

'The Assay of Strong Ointment of Mercune Nitrate' by C H Hampshire and G R Page

'Notes on Some Pharmacopæial Tests—H Chimoson, Codeine, Simple Solution of Iodine, Sodium Phosphate' by G R Page

Phosphate' by G R Page

'The Chemical Assay of Ergot' by C H Hampshire
and G R Page

In selecting additional substances for description in this Addendum the Commission has received valuable assistance from the Clinical Committee and from the following correspondents —D Evan Bedford, J M H Campbell, G Dovne, H Gardiner Hill Lt Col L W Harrison Y E Lloyd, S G MacDonald, C A R Nitch, H S Stannus, Sir J W Thomson Walker

The Commission acknowledges gratefully the help and advice given by the Committees on scientific and technical subjects in the preparation of this Addendum. In addition, valuable assistance on special points has been rendered by Barrie W. J. Beardley, Mrs. J. St. J. Biake, L. Board man R. K. Callow, A. J. Dey, E. C. Dodde D. B. Dott, the late H. W. Dudley, H. E. Evans, G. J. W. Ferrer, P. Hamill, L. Harding C. R. Harngton L. J. Harris W. X. Haworth E. L. Hirst, C. R. Houseman J. G. Juckson, C. Jensen, T. J. Johnston, Mrs. K. Lathbury, F. H. Lees, G. Middleton, A. S. Parkes, J. O. Robinson, Miss M.

Llewellyn Smith, S Smith S W F Underhill, J Walmsley, S S Zilyn

The Commission has received much valuable assistance from the Australian Committee on Pharmacopenal Revision from the Canadian Committee on Pharmaceutical Standards from the Committee in India on Pharmaceutical Revision and from the Department of Public Health for the Union of South Africa. The information and comments received from these sources have been of material assistance in the endeavour to adjust the Addendum to the needs of the Empire

It is the pleasant duty of the Commission to record the active co operation over a number of years between the Committee of Revision of the United States Pharmacopæia and the British Pharmacopæia Commission. An interchange of views has taken place on many subjects but perhaps the most fruitful activity has been an effort to harmonies the titles and standards of the two Pharma coperis. The Commission hopes that this practice having been once begun may be continued with advantage to both books.

The following Government Denartments and other bodies.

The following Government Departments and other bodies have co operated with the Commission in various ways during the preparation of the Addendum —The Arres thetres Committee of the Medical Research Council and the Royal Society of Medicine the Association of British Chemical Unifacturers the Board of Customs and Excise the British Disinfectivit Manufacturers Association the British Standards Institution the Department of Health of New Zerlund the Federation of British Industries the Government Laboratory, the Imperial Institute the Lister Institute of Preventive Medicine the London County Council Department of Health the Medical Research Council the Ministry of Agriculture and Fisheries the

BRITISH PHARMACOPCEIA, 1932 National Physical Laboratory, the Pharmaceutical Societies of Great Britain of Ireland and of Northern Ireland, the Rockefeller Institute for Medical Research, the Royal Botanic Gardens, Kew, and the White Oils Manufacturers

XX

Association.

BRITISH PHARMACOPŒIA 1932

CORRIGENDA IN THE FIRST ISSUE (SEPTEMBER 1932)

page line
xxxi 44 for Frithritols
xxxiv 2.5 for Rubrum
14 11 for Tests
read Test
read Test

14 11 for , dissolved in °00 read of a 0.5 per cent v/v millitres of water solution in water read part read boil I gramme with water

scater until all the
ammonia has been
driven off complies
with the limit test
for riven

scare limit all the
until all the ammonia has
been driven off and add
with the limit test
cord leT the solution
complies with the limit

the grain seed of the seed of

the ammonia has been driven off om plees with the limit test for son test for son test for son the limit test for sron think test for sron the limit t

10 of the of per cent.
12 25 for 10 502
10 of ter line 22
10 of terline 22
10

sure that the number stated on the label as still present at the end of that period during which the preparation is intended to be used.

65 33 for tale real tale
77 4 for Synonyms real Synonym
87 13 for determined as read determined on the alcohol soluble matter from 5

soluble matter from grammes by the method read 13 | 106 18 | for 0 02 per cent w/w | read 0 002 per cent w/v |

TTI

BRITISH PHARMACOPŒIA, 1932

page line

| page | | | |
|---|---|--|--|
| 113 | 21 | after hydroxide | insert , prepared with alcohol |
| | | | (95 per cent). |
| 131 | 28 | for Colchicum Seed | read the colchicum seed being |
| | | • | assayed |
| 163 | 14 | after sulphate | snsert 40 mullilitres of the filtrate |
| | | 4, | represents 16 milliptres of |
| | | | the liquid extract of col |
| | | | chicum being assayed |
| 101 | | after below | insert , commencing with the |
| 10. | • | after below | sneers , commencing with the |
| | | | words wash the residue |
| | | | into a separator |
| 164 | 14 | | read Cormus |
| 164 | | delete about | |
| 173 | 38 | after per cent | insert v/v |
| 176 | 33 | after per cent | tnsert v/v |
| 179 | 17 | after per cent | insert v/v |
| 185 | 30 | & 31 delete , as directed | · |
| | | under 'Pilula Ferri | |
| | | Carbonatis ' | |
| 192 | 20 | | |
| 192 | 20 | | read 0 1 |
| 192 | 22 | after produced | snsert immediately |
| 211 | 5 | for Mercuric Oxide | read Yellow Mercuric Oxide |
| 226 | 6 | for 2 to 4 mils 30 to 60 | read 2 to 8 mils 30 to 120 |
| 230 | | minims. | minims |
| 265 | 17 | for water | read alcohol (90 per cent) |
| 272 | 29 | | read 1 grain |
| 274 | -6 | | • |
| | | This solution satisfies | |
| | | the test for sterulty | |
| 297 | 10 | | ensert Synonym Oculentum |
| 291 | 10 | stigmina | Fsering |
| 324 | | | |
| 324 | 10 | | |
| | 18 | after when | snsert dried |
| | 19 | after when after hours | snsert dried snsert (limit of solid paraffins) |
| 326 | 19 40 | after when after hours for Soft Paraffin white | snsert dried snsert (limit of solid paraffins) read White Soft Paraffin |
| 326 376 | 19 40 41 | after when after hours for Soft Paraffin white for Soft Paraffin | insert dried insert (limit of solid paraffins) read White Soft Paraffin read White Soft Paraffin |
| 326 326 352 | 19 40 41 9 | after when after hours for Soft Paraffin white for Soft Paraffin for 5 | insert dried insert (limit of solid paraffins) read White Soft Paraffin read White Soft Paraffin read 50 |
| 326 376 | 19 40 41 | after when after hours for Soft Paraffin white for Soft Paraffin | snsert dired snsert (limit of solid paraffins) read White Soft Paraffin read White Soft Paraffin read 50 snsert previously neutralised |
| 326 326 352 352 | 19 40 41 9 36 | after when after hours for Soft Paraffin white for Soft Paraffin for 5 before filter | snsert dried snsert (limit of solid paraffins) read White Soft Paraffin read White Soft Paraffin read 50 snsert previously neutralised to phenolphthalein, |
| 326 376 352 352 352 | 19 40 41 9 36 | after when after hours for Soft Paraffin white for Soft Paraffin for 5 before filter before alcohol | snert dried snert dried snert (limit of solid paraffins) sead White Soft Paraffin read White Soft Paraffin read 50 snert previously neutralised to phenolphtaleun, wastr neutralised |
| 326 3°6 352 352 352 375 | 19 40 41 9 36 36 | after when after hours for Soft Paraffin white for Soft Paraffin for 5 before filter before alcohol for thirty | susers dured sussers (limit of solid paraffins) read White Soft Paraffin read White Soft Paraffin read 50 susers previously neutralised to phenolphihalarn, unsert neutralised read fifty |
| 326 376 352 352 352 375 379 | 19 40 41 9 36 36 46 29 | after when often hours for Soft Paraffin white for Soft Paraffin for 5 before filter before alcohol for thirty after substance | sneerd dried sneerd (limit of solid paraffins) read White Soft Paraffin read White Soft Paraffin read So sneeri previously neutralised to phenolphthalein, visier neutralised read fifty |
| 326 376 352 352 352 375 379 381 | 19 40 41 9 36 36 46 29 12 | after when ofter hours for Soft Paraffin for Soft Paraffin for 5 before filter before alcohol for thirty after substance for the either | susers dured sussers (limit of solid paraffins) read White Soft Paraffin read 50 the soft Paraffin read 50 susers previously neutralised to phenolphihalem, unsert neutralised read fifty the read fifty the read first production of the solid production of the read first read first read first read first productions of the read firstly reductions the read firstly reductions. |
| 326 396 352 352 352 375 379 381 381 | 19 40 41 9 36 36 46 29 12 22 | after when ofter hours for Soft Paraffin for Soft Paraffin for 5 before filter before alcohol for thirty after substance for the either for limit | sneerd dried sneerd (limit of solid paraffins) read White Soft Paraffin read White Soft Paraffin read So sneeri previously neutralised to phenolphthalein, visier neutralised read fifty |
| 326 376 352 352 352 375 379 381 | 19 40 41 9 36 36 46 29 12 | after when after hours for Soft Paraffin white for Soft Paraffin for 8 before filter before although for thirty after substance for the either for limit for It contains not less for It contains not less | sneet deed sneet (limit of solid paraffins) read White Soft Paraffin read White Soft Paraffin read Soft Para |
| 326 396 352 352 352 375 379 381 381 | 19 40 41 9 36 36 46 29 12 22 | after when after house of Soft Paraffin white for Soft Paraffin for 5 before filter before alcohol for thirty after substance for the ether for limit for limit for It contains not less than 85 per cent of | sneet deed sneet (limit of solid paraffins) read Whate Soft Paraffin read Whate Soft Paraffin read 50 sneet personally neutralised to phenophthalem, sneet neutralised tract fitter read fitter read fitter read fitter read spence |
| 326 396 352 352 352 375 379 381 381 | 19 40 41 9 36 36 46 29 12 22 | after when often have of soft Paraffin white for Soft Paraffin for 5 before alcohol for thatty age of the soft paraffic paraffer substance for instance for instance for instance for instance for instance for instance for its contains not less than 98 per cent of the pods described | sneerd draid sneerd (innit of solid paraffins) read White Soli Paraffin read White Soli Paraffin read White Soli Paraffin read White Soli Paraffin sneer previously neutralised to phenolphicalein, sneer neutralised read fifty sneer; read fit contrain no more than 2 per cont of other organio 2 per cont of other organio |
| 326 376 352 352 352 375 379 381 381 | 19 40 41 9 36 46 29 12 22 2 | after when after house for Soit Parasiin white for Soit Parasiin for 8 before filter before alcohol for thirty after substance for the other for limit hause not less the pods described below | sneet dired sneet (limit of solid paraffins) read White Soft Paraffin read White Soft Paraffin read White Soft Paraffin sneet previously neutralised to phenolphicalem, sneet neutralised read fifty read freshly redaitiled other read sheene read it continua not more than 2 per cent of other organo matter |
| 326 396 352 352 352 375 379 381 381 | 19 40 41 9 36 36 46 29 12 22 | after when ofter hours for Sott Parasiin white for Sott Parasiin for 8 before filter before alcohol for thirty after substance for the other for limit of the form | sneerd drad sneerd (innit of solid paraffins) read White Soft Paraffin read Who Soft Paraffin read Who Devotory neutralised to phenophidalen, sneer neutralised read fifty tracer; read fired by reductive defender read sheenes read fired paraffines and read fired read fired read fired read fired read fired neer in the fired read fired read fired neer in the fired read fired read fired neer in the fired per cont of other organio matter |

| page line | |
|--|--|
| 391 25 after grammes | ensert, dissolved in 15 milli- litres of dilute nutric acid |
| | FeT, |
| 394 18 for 5 | read 50 |
| 395 17 for 5 | read 50 |
| 428 21 for 1/120 | read 1/130 |
| 443 14 after sulphate | tnsert 40 millilitres of the fil- |
| 110 11 dy- | trate represents 160 mills- |
| | litres of the tincture of |
| | colchicum being assayed |
| 445 II for temperture | read temporature |
| 450 3 for represent | read represents |
| 461 16 for Tests | read Test |
| 461 after line 18 | ensert Tests for Purity. Com- |
| 401 bja/ mo 16 | plies with the tests for |
| 468 15 for Tuberculosis | read tuberculosus |
| 468 34 for Tuberculosus | read tuberculosta |
| 470 21 for Soft Paraffin | read White Soft Paraffin |
| 471 8 for Soft Paraffin | read Yellow Soft Paraffin |
| 473 19 for Soft Paraffin, | |
| 485 29 for extract | read extractive |
| 507 26 for ruthenium | |
| mide | hydroxychloride, |
| mad | Ru ₂ Cl ₄ (OH), 7NH, 2H ₄ O |
| 514 after line 20 | insert for N/2 28 05 |
| pre aprovinte 20 | grammes KOH |
| 530 36 for millilitres | read raillimetres |
| 535 last for millimetres | read millistres |
| E20 last for No. 118 | read No 188 |
| 539 last for No 118 579 27 for N/10 | read N/2 |
| 581 2 for millilitres | read millimetres |
| 581 15 for 5 | read 3 |
| 616 31 for bilogical | read biological |
| 621 6 for militres | read millihtres |
| 621 7 for represent | read represents |
| 621 10 for represent | read represents |
| 635 13 for UNDUE | read ABNOR VAL |
| 643 after line 11 | insert Abnormal Toxicity, Test |
| • • • | for Freedom from 635 |
| 668 49 for Undue 708 16 for undue | read Abnormal |
| 708 16 for undue 710 33 for Undue | read Abnormal |
| | reas Autoritias |
| 711 delete line 1 | |
| | |
| | |
| | |
| | |

ADDITIONS TO THE BRITISH PHARMACOPOLIA, 1932

Acetarsol
Actdum Ascorbicum
Antitoxinum Œdematiens
Antitoxinum Staphylococcicum
Antitoxinum Vibriosepticum
Argentoproteinum

Bismuthi et Sodii Tartras Bismuthi Oxychloridum Calciferol Calci Chloridum Hydratum

Calcu Chloridum Hydri Calcu Gluconas Chiniofonum Frgometrina

Extractum Stramonu Liquidum Extractum Stramonu Siceum Fern Subchloridum Citratum Histaminæ Phosphas Acidus Injectio Bismuthi Oxychloridi Injectio Mersalyli Liquor Calciferolis Liquor Iodi Aquosus Uersalylum

Oleum Iodisatum
Pulvis Vitamum B₁
Serum Antipneumococcicum I
Serum Antipneumococcicum II

Serum Antipneumococci Sodii Thiosulphas Theophyllina Tryparsamidum

J parsamasan

DELETION FROM THE BRITISH PHARMACOPEIA, 1932 Laquor Exposterolis Irradiati

Monographs of the Bestish Phapvacopæia, 1932, which are amended by the Addendem, 1936

Acetum Scillæ Cinchophenum
Acriflavina Digitalis Fulverata
Adeps Ergota
Adeps Lanæ ErgotamæÆthan
Adrenalina ErgotoxinæÆthan

Adepa Lanze Ergotomæ Æthanosulphonas Adrenalina Extractum Belladonne Liqui Æthec dum Alomum Friesetum Ergote Liquidum Alumen Extractum Hyoseyumi Liqui

Amylum dum
Aqua Sterilisata Extractum Pituitarii Liqu dum
Atropinae Sulphas Extractum Senegae Liquidum
Belladonnae Folium Ferri et Ammonii Citras

Bismuthi Carbonas Ferrum
Bismuthim Precipitatum Hydrargyri Oxycyanidum
Buchu Hydrargyrum eum Creta
Calen Choridum Hyoscyanius

Calcu Hvdroxidum Indicarminum
Calumba Infust.m Digitalis Recens

Carbonet Dioxidum Injectio Bismuthi
Cera Flays Injectio Bismuthi Salicylatis

MONOGRAPHS AMENDED (continued)

Injectio Sodii Chloridi et Acacia Paraffinum Liquidum Insulutum I henol Liquefactum Yodoformum Phenolphthalemum

Ipecacuanha Plumbi Acetas Lactosum Potassu Bicarbonas

Linimentum Belladonne Potassu Carbonas Liquor Adrenaling Hydrochler Potassu Citras

Potassu Hydroxidum Liquor Cresolis Saponatus Pyroxylinum

Liquor Fern Perchloridi Oumne et Æthylis Carbonas Liquor Iodi Simpley Rheum

Liquor Sodii Chloridi Physio Sapo Animalis

logicus Sapo Durus

Menthol Sapo Mollis Methylia Sai cylas Sodu t stras

Neographenatuma Sodu Hydroxidum Olemo Abictis Sodn Phosphus

Oleum Cajuputi Sulpharsphenanupa Okum Chencto lu Thyroideum Oleum Lavandulm Thyroxinsodium

Oleum Limonia Tinetura Digitalis Oleum Mentlie Piperitm Tinetura Ipecacuanha

Oleum Morthuæ Tinctura Stramonii Oleum Myristicae Toxinum Diphthericum Detoxi

Oleum Ohym catum

Oleum Rosmarini Unguentum Simplex

Olutim Suntali Unguentum Sulphuris Oleum Terchinthian V aleriana

Oxygenium Zinci Sulphas

GENERAL NOTICES

Page 11, after last line, insert

ERFORS OF BIOLOGICAL ASSAYS

In expressing the limits of error of biological assays the term 'limits of error (P=0.99) is used. The state ments of the errors of these assays are based on the convention that, for practical purposes a probability of 0.99 is equivalent to certainty. In other words it has been estimated that the result of the assay will be within the stated limits 90 times out of every 100 times that the stated limits 90 times out of every 100 times that the stated limits 90 times out of every 100 times that the stated limits are given as percentages of the true result. Thus, the statement limits of error (P=0.99) 95 and 105 per cent 'means that it has been estimated that in 99 as-ays out of 100 the result will be greater than 95 per cent, and less than 105 per cent of the true result.

If the error of the test, or its logarithm, is normally distributed, the stated limits of error correspond to the range covered by $\pm 2\,576$ times the standard deviation

The hunts of error have been calculated, where possible, from the errors occurring in actual experiments. The errors are, however, liable to vary under conditions which cannot always be precisely defined. Individual workers should estimate the errors from their own data

The errors of the assays of stamms hate been calculated on the assumption that the response to the standard preparation is equal to the response to the preparation being tested. If the responses are not equal, any divise used to allow for this necessative to return the response

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2 which is not included in the stated error. The error due to the inequality can be largely eliminated by so arranging the away that the preparation being tested is given in two doses, in such a way that one dose has less effect, and the other dose more effect, than the dose of the

standard preparation.

MONOGRAPHS

ACETARSOL [Acetarsol]

Acetarsol

Synonym Acetarsone

CH, CONH C,H,(OH) IsO(OH), Mol Wt 275 0

Acctarsol is 3 acetvlamino-1 hydroxyphenylarsonic acid, and may be prepared by the reduction of 3 nitro-1 hydroxyphenylarsonic seid and subsequent acetylation of the ammo-acid thereby produced It contains not less than 270 per cent, and not more than 271 per cent, of As

Characters A white, crystalline powder

Almost insoluble in cold water moderately soluble in boiling water, insoluble in alcohol (95 per cent) and in dilute acids.

coluble in dilute alkalia.

Tests for Identity Melting point, 240° to 250°

Dissolve 1 gramme in 2 millitres of solution of solution

hydroxide, and dilute with water to 10 millihtres
To 2 millihtres of the solution and 2 millihtres of solution
of ma pressum ammonic-sulphate, no precipitate is produced
in the cold boil the solution a white precipitate is

produced.

Heat 2 millilitres of the solution with 2 millilitres of sulphuric acid and 2 millilitres of alcohol (95 per cent), tho

odour of ethyl acetate is produced

* Tests for Purity Dissolve I gramme in a mixture of 2 millihitres of dilute solution of ammonia and 8 millihitres of water, and add 10 millihitres of solution of magnesium ammonio-swiri ate, no

precipitate is produced during thirty minutes (limit of inorganic arrenates)

Dissolve 0.5 gramme in a mixture of 1 millilitre of solution of solution by of solution spirars is and 9 millilitres of state, add 9 millilitres of state, add 9 millilitres of state, and 10 millilitres of the filtrate below 3°, add 2.5 millilitres of coll 10 millilitres of the solution of solution shades, said add 3 millilitres of solution of solution shades and 2.5 millilitres of solution of solution shades and 2.5 millilitres of solution of panglilitis, the colour developed is not deeper than the

colour produced in the following way-Dissolve 0 01 gramme m a muxture of lo millulatres of h edror long and and lo millulatres of water boil for five minutes cool, and dilute with water to 100 millihtres Mix 2 5 millihtres of this solution with 3 milli litres of dilute hydrochloric and 45 millultres of water. cool below 5°, add 2 5 millilitres of a 1 per cent w/v aqueous solution of sodium nitrite shake and add 3 millilitres of solution of sodium h paroxide and 25 millistres of solution of \$ naphthol (limit of free amino-acid)

Shake I gramme with 10 millilities of grater, and filter, 5 millilitres of the filtrate complies with the limit test for chlorides Loses when dried at 100° for four hours not more than 0.5

per cent of its weight, and leaves, on incineration, not more than 0.2 per cent of readge

Assay Carry out the Assay for Arsenic as described under Tryparsamidum' Fach millibtre of \/10 todase is equivalent to 0 003747 gramme of As

DOSES Metric

0 06 to 0 25 gramme

Imperial 1 to 4 grains

ACETUM SCILLÆ Vinegar of Squill

Page 15, line 4. delete ', and filter while hot ".

ACIDUM ASCORBICUM

[Acad. Ascorb] Ascorbic Acid

Synonym Vitamin C

O CO C(OH) C(OH) CH CHOH CH,OH Mol. Wt 1761

Ascorbic Acid, the enolic form of 3 Leto I gulofuranolactone, may be obtained from the npe fruit of Capsicum annuum Linn and other vegetable sources, or by synthesis It contains not less than 98 per cent of C.H.O.

Characters Minute colourless crystals, odourless, taste acid, resembling that of lemon juice

Peadily soluble in water, less soluble in alcohol (90 per cent) in methyl alcohol, and in acctone, insoluble in ether, and in light petroleum.

Tests for Identity and Purity. An aqueous solution is acid to litmus

An aqueous solution liberates carbon dioxide from solution

of sodium bicarbonate

An aqueous solution decolorises solution of 2 6-dichlorophenol indophenol

An aqueous solution reduces solution of polassio-cupric tartrate, producing a yellowish precipitate

tartrate, producing a yellowish precipitate

An aqueous solution reduces solution of polassium permangan
ale immediately, producing a faintly brown or colourless solu

tion

An aqueous solution reduces solution of silver nitrate im mediately, producing a black precipitate

Meling point, 190° to 192°, with decomposition, specific rotation in a 2 per cent w/r squeous solution, +22° to +22° in a 2 per cent w/r solution in methyl elcohol, +50° to +51°, in a 2 per cent w/r solution in a mixture of 12 millihtres of 1/1 in a 2 per cent w/r solution in a mixture of 12 millihtres of 1/1 in a 2 per cent w/r squeon in a millicent quantity of writer to produce 100 millihitres, +112° to +115°, with a tolet absorption in a 0002 per cent w/r squeous solution of pH 3, or less, at

245mji, 550
Assay. Dissolve about 0.04 gramme, accurately weighed, in a mixture of 5 millilitres of scater and 5 millilitres of dilute sulphuric acid, and titrate with N/100 sodine, using micilage of starch as indicator Dach millilitre of N/100 volue is

equivalent to 0 00088 gramme of C_eH₄O₄ Storage Crystolline Ascorbic Acid is stable, when kept in a glass

bottle Solutions of Ascorbic Acid, especially if alkalino, deteriorate rapidly in contact with air

DOSES

Metric.

Imperial.

Prophylactic (daily) 0 025 to 0 05 gramme 2/5 to

mme ²/₅ to ⁴/₅ grain, (500 to 1000 Units).

Therapeutic (dally)

to 0.25 gramme 11/2 to 4 grains,

(2000 to 5000 Units).

Ascorbe Acid possesses antiscorbutic properties and if tested by the biological caset of antiscorbutic triumin (rational c) contains in I gramme 20,000 Units of antiscorbutic activity (ritionia C)

The antiscobutio activity of a preparation containing vitamin C, for which the chemical assay is not applicable, is determined in relation to the Standard Preparation of antiscorbutio vitamia (vitamia C) by the biological assay of antiscorbutio ritamia (vitamia C), and is expressed in Units per grainme

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ACRIFI.AVINA Acriflavine

Pages 35 and 36.

delete this monograph.

1nsert

6

ACRIFI.AVINA [Acriflavin]

Acriflavine

Acriflavine is a mixture of the hydrochlorides of 2 8diamino 10 methylacridinium chloride and 2 8-diaminoacriding and contains approximately one third of its weight of diaminoacridine dihydrochloride. It may be prepared by the partial methylation of diacetyldiaminoacridine and subsequent hydrolysis of the product with hydrochloric acid

Characters An orange red to red, crystalline powder odonrless, taste acid

Soluble in about 3 parts of scaler this solution may precipi tate on dilution or on standing Soluble in about 500 parts of physiological solute n of sodium ellor de Soluble in alcohol (90 per cert), almost insoluble in ether and in chloroform, soluble in glycerin, almost insoluble in fixed and volatile oils ard in liquid paraff n

Tests for Identity 0.04 gramme dissolved in 10 millilitres of water forms a deep orange coloured fluorescent solution which

responds to the following tests -

2 millshtres daluted with about twice its volume of water, gives a red colour on the addition of a few drops of colution of meth il orange

2 milhitres viells a bully yellow precipitate on the addition of a 10 per cent w/r aqueous solution of sodium

salic ilate (distinction from fluorescein)

5 millilitres gives a brownish precipitate on the addition of a few drops of solution of formal lehyde and a millitres of a 10 p r cent w/v aqueous solution of sodi im milrite. When the mixture is allowed to stand for five minutes and filtered the filtrate is cherry red in colour (dis inction from unmethylated diarmoscridine compounds)

Yields the react one characteristic of chlorides Tests for Purity I gramme, dissolved in 50 millistres of water at 30°, forms a clear solution, which remains clear and free from sediment on standing in the dark at 15° to 20° for twenty four hours 0 2 gramme, dissolved in 100 millihitres of a 0 9 per cent

w/v aqueous solution of sodium chloride at 30°, forms a clear solution, which remains clear and free from sediment on standing in the dark at 15° to 20° for twenty four hours

Mousten I gramme with sulphuric acid, ignite gently, again moisten with sulphuric acid, and re ignite, the residue weighs not more than 0.01 gramme

DOSES

Metric,

Imperial.

0 03 to 0 1 gramme

1/2 to 11/2 grains.

ADEPS

Lard

Page 37, lines 7-9,

delete ", and, after being filtered and acidified with nitric acid, does not yield any reaction with solution of edier nitrate (absence of chlorides) ',

titsett "Bol 1 gramme with 20 millilites of airodo (90 per cept) under a relive condenser for five municis, cool, aid of 0 millilitres of voter and 0.5 millilitre of nitre acid, filter, and to the
filtres aid 5.6 drops of a 1 per cent v/y solution of silter nitrate
in alcold (90 per cent), the turbulty, if any, is not greater than
that produced by aiding 5. drops of a 1 per cent v/y solution
of silter nitrate in alcold (90 per cent) to a mixture of 0.5 millilitre
of NSO hydrecloric caid, 20 millilitres of aidinal (90 per cent),
40 millilitres of aidina diction little silter of nitra acid, the liquids
being examined after an intera of five numbers (limit of chlorides)."

ADEPS LANÆ

Wool Fat

Page 38,

delete lines 5-12 :

insert "Complies with the test for limit of chlorides described under 'Adeps'.".

ADRENALINA

Adrenaline

Page 38.

after line 35.

ensert "CAUTION—In any part of the British Empire in which Adrenatine (Epinephrine) is controlled by law, care must be taken that the provisions of such law are duly complied with (See page 12)".

ÆTHER

Ether -

Page 40, line 9, delete "and not more than pH 51,".

after line 22,

**unsert "Complies with the test for methyl alcohol described under 'Æther Anæstheticus'"

ALOINUM

Aloin

Page 48,

delete lines 21-26;

therf "Place I gramme in a stoppered flask with 120 mills htree of water at 2.9°, and shake frequently during two hour, maintaining the temperature at 2.5° throughout, fifter through a Gooch crueble, which has been prepared with asbested, and at 100° and tared, wash the residue on the fifter with 25 millistires of water, and dry at 100°, the residue weighs not more than 0018 gramme.

ALUMEN

Alum

Page 49,

delete lines 26-28.

trasert "Dissolve I gramme in 1000 millilitres of ammonia free scater, to 10 millilitres of the solution add 40 millilitres of ammonta free venter and 2 millibitres of aliaine solution of potassio mercurie colded, any colour produced is not deeper than that proby 1 millibitre of dutie solution of ammonium oblonde (Acester) in 50 millibitres of ammonia free voter, to which 2 millibitres of aliaine solution of potassio mercurie sociade has been added (limit of ammonium salts)".

AMYLUM

Starch

Page 55, last line,

after "Linn",

insert 'or of rice, Oryza saliva Linn".

Page 56, line 2,

after 'odourless", insert 'Mui e Starch".

insert ' Mai e Starch'

after line 5,

nisert* Rice Starch Consists of single and compound grains single grains polyhedral, usually from 5 to 8 micross an diameter and sometimes exhibiting a minute central halom compounders and sometimes exhibiting a minute central halom compounders to 20 micross in length and from 7 to 20 micross in width, and containing from 2 to 150 component grains?

ANTITOXINUM ŒDEMATIENS

[Antitox Œdemat.]

Gas-gangrene Antitoxin (ædematiens)

CAUTION—In any part of the British Empire in which Gas gangrene Antitaxin (adematicns) is controlled by law, care must be taken that the processions of such law are duly compiled with (See British Pharmacopazia, 1932, page 12)

Gas gangrene Antitoxin (ordematiens) is serum, or a preparation from serum, continuing the antitoxic globulius which have the specific power of neutralising the toxin formed by Clostridium ordematiens It is prepared by separating the serum from the blood of animals, which have been immunied by grided niections of the sterile filtrate from a culture of Clostridism adematiens in a fluid medium. The serum may be used in the liquid form or may be dired. The antitione globulins may be obtained from the serum by fractional precapitation, and the precipitate may be used either in solution, or dried. The final sterile product, whether serum dired serum, solution of antitione globulins or dired antitions globulins, is distributed in sterilised glass containers which are sealed so as to evclude bacteria. An antisentic may be added to the hould forms

Characters The liquid serum is yellow or yellowish brown. The solution of the antitoric globulins is yellowish brown or greenish yellow. Both liquid forms are initially transparent but acquire with age a faint opalescence. They are almost doorlies, except for the odour of any antiseptic which may have been added. The solid forms are yellowish white powders or yellowish brown flakes. When dissolved in 10 parts of water, they resemble the liquid forms in colour and appearance. The liquid serum does not contain more than 10 per cent w/r of solid matter. The solid ton of antitoric globulins does not contain more than the 20 per cent w/r of solid matter. The solid

forms do not contain antiseptic or other added substance

Test for Identity It renders the toxin formed by Clastridi in

rest for Identity It renders the

Tests for Punty All forms comply with the tests for sterility All forms comply with the tests for freedom from abnormal

ASSAY Determine the potency in relation to the Standard Proparation of gas gangeree antitoxin (cedematicas) by the biological assay of pas gangree antitoxin (cedematicas) and express it in Units per millilities for liquid preparations in Units per gramme for solid preparations.

Storage Gas gangreno Antitoxin (ordematiens) should be kept at as low a temperature as possible above its freezing point. The number of Units placed in each container must be sufficient to ensure that the number stated on the label is still present at the end of the period during which the preparation is intended

to be used

Labelling The label or wrapper on the package or the label
on the container states —(1) whether the product is serum,
dred serum, solution of antitoxic globulus or dred antitoxic

globulins, (2) the date after which the preparation is not

intended to be used

The label on the container states —(1) the minimum total number of Units in the container, (2) either (a) the number of Units in 1 milhibre, or in 1 gramme, or (b) the total number of milhibres of liquid, or grammes of dired product, in the container

DOSES
By injection
Prophylactic 20 000 Units
Therapeutic 50 000 to 100.000 Units.

ANTITOXINUM STAPHYLOCOCCICUM

[Antitox Staphylococc]

Staphylococcus Antitoxin

CAUTION—In any part of the British Empire in which Staphylococcus Antitoxin is controlled by law, care must be taken that the provisions of such law are duly complied with (See British Pharmacopana 1932, page 12)

Staphylococcus Antitoxin is serum or a preparation from serum, containing the antitoric globulins which have the specific power of neutralising the toxin formed by certain strains of Staphylococcus

It is prepared by separating the serum from the blood of animals, which have been immunised by graded notions of the sterile filtrate from a culture of Staphylooccus pypogenes in a suitable medium. The serum may be used in the liquid form, or may be dired. The antitonic globulins may be obtuned from the scrum by fractional precipitation, and the precipitate may be used either in solution, or dried. The final sterile product, whether scrum, dried scrum, solution of antitoxic globulins, or dried antitoxic globulins, is distributed in sterilised glass containers which are scaled so as to exclude bactern. An antiseptic may be added to the loquid forms.

Characters The liqui I serum is yellow or yellowish brown. The solution of the antitoxic globulins is yellowish brown or greenish yellow. Both liquid forms are initially transparent, but acquire with age a faint opalescence. They are almost odourless, except for the odour of any antiseptic which may have been added The solid forms are yellowals white powders, or yellowals brown fishes. When dissolred in 10 parts of wafer they resemble the liquid forms in colour and appearance. The liquid serum does not contain more than 10 per cent w/v of solid matter. The soliton of antitron globuling does not contain more than 20 per cent w/v of solid matter. The solid forms do not contain antisentic, or other added substantials.

Test for Identity It renders the toxin formed by certain strains of Staphylococci harmless to animals, and neutralises its lytic action, when tested in vitro on the red blood corpuscies of the rabbit Tests for Purity All forms comply with the tests for sterilit:

All forms comply with the tests for sterility
All forms comply with the tests for sterility
formst

Assay Determine the potency in relation to the Standard Preparation of staphylococcus antitoxin by the biological assay of staphylococcus antitoxin, and express it in Units per millities for liquid preparations, and in Units per gramme for solid preparations

Storage Staphylococcus Antituxan should be kept at as low a temperature as possible above its freezing point. The number of Units placed in each container must be sufficient to ensure that the number-stated on the label is still present at the end of the period during which the preparation is intended to be used. Libelling The label or wrapper on the package, or the label on

Laseling Ine iscel or wrapper on the package, or the iscel on the contamer, states -(1) whether the product is serum, dired serum, solution of antitoric globulins, or dired antitoxic globulins, (2) the date after which the preparation is not intended to be used

The label on the container states —[1] the minimum total number of Units in the container, (2) either (a) the number of Units in 1 millihitre, or in 1 gramme, or (b) the total number of millihitres of liquid, or grammes of dired product, in the container

DOSES
By injection.
5000 to 20,000 Units

ANTITOXINUM VIBRIOSEPTICUM

[Antitox. Vibrioseptic]
Gas-gangrene Antitoxin (vibrion septique)

CAUTION -In any part of the British Empire in which Gas-gangrene Antitoxin (vibrion septique) is controlled by

law, care must be taken that the provisions of such law are duly complied with (See Brilish Pharmacopæia, 1932, page 12)

Gas gangrene Antitoxin (vibrion septique) is serum, or a preparation from serum, containing the antitoxic globulins which have the specific power of neutralising the toxin formed by the Clostridium, commonly known as Vibrion Septique

It is prepared by separating the serum from the blood of animals, which have been immunised by graded injections of the sterile filtrate from a culture of the Clostridum, commonly known as Vibrion Septique, in a fluid medium. The serum may be used in the liquid form, or may be directly the antitoric globulins may be obtained from the serum by fractional precipitation, and the precipitate may be used either in solution, or dried. The final sterile product, whether serum, dired serum solution of antitoxic globulins, or dried antitoxic globulins, or dried antitoxic globulins, is distributed in sterilised glass containers, which are scaled so as to exclude bacteria. An antiseptic may be added to the liquid forms

Characters The liquid serum is yellow or yellowish brown The oliution of the antitoxic globulina is yellows brown or greenish yellow. Both liquid forms are mitally transparent, but acquire with ago a faint opalescence. They are almost odouriess, except for the odour of any antiseptic which may have been added. The solid forms are yellowsh which powders, or yellowish brown fakes. When dissolved in 10 parts of water they resemble the liquid forms in colour and appearance. The liquid arcum does not contain more than 10 per cent. We will be a solid forms of the solid forms of the

rest for facturity. It renders too texts normed by the Controllum, commonly known as Vibrion Septinge, harmless to animals.

Tests for Purity All forms comply with the tests for sterility. All forms comply with the tests for freedom from abnormal learner!

Assay. Determine the potency in relation to the Standard Preparation of gas-gangrene antitoxin (vibrion septique) by the biological assay of gas-gangrene antitoxin (sibrion septique), and express it in Units per milhlitre for liquid preparations, and in Units per gramme for solid preparations

Storage Gas gangrene Antitoxin (whom septique) should be kept at as low a temperature as possible above its freezing point. The number of Unita placed in each container must be sufficient to ensure that the number stated on the label is still present at the end of the period during which the preparation is intended

to be used

Labelling The label or wrapper on the package, or the label on
the container, states —(1) whether the product is serum, dired
serum, solution of antitoxic globulins or dired antitoxic globu

lms, (2) the date after which the preparation is not intended to be used

The label on the container states —(1) the minimum total number of Units in the container, (2) either (a) the number of Units in 1 millultre, or in 1 gramme, or (b) the total number of millultres of liquid, or grammes of dried product, in the container.

DOSES

By injection.

Prophylactic 5000 Units

Therapeutic 10 000 to 20,000 Units.

AQUA STERILISATA

Sterilised Water

Page 70,

delete this monograph;

1nsert

AQUA STERILISATA [Aq Steril]

Sterilised Water

Distil potable water from a glass still, or a still in which he distillate does not come in contact with copper, which has been cleansed immediately before distillation. Reject the first portion of the distillate and collect the remander in a sternless dientral glass container. Close the container so as to exclude bacteria, either by inserting a plug of sternle non absorbent cotton wool wrapped in gause, or by fusion of the glass, or by some equally effective method, and immediately sterilise by heating in an autoclave

Stenlised water kept in a container which is closed with cotton wool is used within one month after its preparation If kept in a container which is sealed by fusion of the glass or by some equally effective method it may be stored for a longer period

If the whole of the contents of a container is not used when the container is opened the remainder may be stored as described above provided that the container is immediately both closed again so as to exclude bacteria and

sterilised by heating in an autoclare

Emergency Method If an autoclave is not available place the water freshly distilled as described in a sternised neutral glass container close the container so as to exclude bacteria by inserting a plug of sterile non absorbent cotton wool wrapped in gauze and boil for thirty minutes Sternlised water prepared by the emergency method is used within twenty four hours of its preparation

Tests for Purity Complies with the Tests for Purity described under Aqua Destillata

ARGENTOPROTEINUM

[Argentoprot]

Silver Protein

Synonyms Argentum Proteinicum Forte Strong Protein Silver Silver Proteinate

Silver Protein is a compound of silver and protein which may be prepared by the action of a silver compound on gelatin in the presence of alkali It contains not less than 75 per cent, and not more than 85 per cent, of Ag

Characters A brown powder, odourless, somewhat hygro-

scop c
Slowly soluble in about 2 parts of water forming a dark brown
solution almost insoluble in alcohol (95 per cent) in ether, and
in chloroform

Tests for Identity Chars when bested and, on complete incinera-

tion, leaves a grevish white residue, which yields the reactions characteristic of silver When test-solution of ferric chloride is added to a I per cent

w/v aqueous solution, the dark colour is discharged, and the solution becomes opale-cent on standing

When test-solution of mercuric chloride is added to a 1 per cent w/v aqueous solution, a white precipitate is formed, and

the liquid becomes colourless or almost colourless.

To 5 millultres of a 2 per cent w/v aqueous solution add 5

millultres of solution of sodium hydroxide, dilute with 10 mills litres of water, add 2 millilitres of a 2 per cent. w/v aqueous solution of copper sulphate, and allow to stand for a few minutes . a violet colour is produced Test for Purity. Shake I gramme with 10 millibres of alcohol

(90 per cent), filter, and add 2 millibres of dilute hydrochloric acid, no turbidity is produced (limit of silver salts)

Assay. Iguite about 2 grammes, accurately weighed, at first gently and afterwards strongly until all carbonaceous matter is destroyed Dissolve the residue in 10 millilitres of nutric acid, heat until no more nitrous fumes are evolved, dilute with water to 100 millihtres, and titrate with N/10 ammonium thiocyanate. using solution of ferric ammonium sulphate as indicator Each millilitre of N/10 ammonium thiocyanate is equivalent to

0 01079 gramme of Ag Storage Silver Protein should be kept in a well closed container,

protected from light. Norra.-Solutions of Silver Protein should be freshly prepared and dispensed in amber-coloured bottles.

ATROPINÆ SULPHAS

Atropine Sulphate

Page 76, hne 13, delete " 105" " :

insert " 136° ".

BELLADONNÆ FOLIUM

Reliadonna Leaf

Page 84, hne 10, after "dilute solution of ammonis". snsert "mixed with 2 millilitres of water,". Page 84, line 32,

before "shake",

insert ", without delay,".

line 33,

after "effected",

insert ", carrying out the extraction as rapidly as possible".

BISMUTHI CARBONAS

Bismuth Carbonate

Page 89, line 28,

delete "89", insert "90".

line 29.

line 25

delete "91";

insert "92".

BISMUTHI ET SODII TARTRAS

[......

Sodium Bismuthyltartrate

Synonym. Bismuth Sodium Tartrate
Sodium Bismuthyltartrate may be obtained by the inter-

action of bismuth hydroride and sodium acid tartrate. It contains not less than 35 per cent, and not more than 42 per cent, of Bi.

Characters. A white powder, or slightly yellow scales. Soluble in less than 1 part of water

Tests for Identity. Yields the reactions characteristic of bismuth, and of sodium, and, after removal of the bismuth, the reactions characteristic of tartrates

An aqueous solution is neutral to lifmus

Tests for Purity. Ignite a grammes, add a few drops of nine ond, we much classifier the resultes in 4 milhitres of nine and, evaporate the solution to half its volume, distent to 100 milhitres with water, and filter; 5 milhitres of the filtrate complies with the limit tests for lead, and for copper, described under 'Bamuthi Carbonas'.

Arsenic limit, 2 parts per million.

Assay Desolve about 0.5 gramme accurately weighed in 60 millihiters of suiter, and side nitric coid gradually until a precipitate is produced. Complete the Assay as directed under Bismuthum Precipitatum, commencing with the words 'Add just sufficient nitric said to redussolve.' Each gramme of the residue is equivalent to 0.6375 gramme of Steffishing of a Solution. A solution of Sodium Bismuthyl taritate for injection is sterlised by heating in an autoclare, or by Tyndillustion, or by Filmiton.

DOSES

Metric

By intramuscular injection.

0 06 to 0 2 gramme

Imperial. tion. 1 to 3 grains.

BISMUTHI OXYCHLORIDUM

[Bism Oxychlor]

Bismuth Oxychloride

Symonym Bismuth Subchloride
Bismuth Oxychloride is a base salt of varying composition obtained by the interaction of solutions of bismuth nitrate and sodium chloride or hydrochloric acid. It contains not less than 79 per cent, and not more than 81 per cent, of Bi, and not less than 125 per cent of CI.

Characters A white or nearly white amorphous or finely crys talline powder odourless tasteless Stable in air

Insoluble in water soluble in dulute hydroxiloric acid
Tests for Identity Lields the react one characteristic of bismuth
and of chlorides

Tests for Purity Complies with the tests for limit of lead copper and sulphates described under 'Bismuthi Carbonss'

Mix 0.5 gramme with 10 millistres of water add 6 milli litres of solution of and go carnine followed rapidly by 15 millistres of nitrogen free sulphura and in two approximately equal portions Boil, and set saide for one minute the blue colour is not entirely discharged (limit of mixtates)

Arsenic limit, 2 parts per million.

Assay For burnuth Carry out the Assay as described under
Bismuthum Precipitatum' Each gramme of the residue
is convalent to 0 8875 gramme of Bi

For chlorine. Dissolve about I gramme accurately weighed, in a mixture of 10 millihitres of nitric acid with 25 millihitres

of water, add 50 milhitres of N/10 efter nitrate, bod, filter, cool, and titrate with N/10 ammonium thiogrands, using solution of ferric ammonium sulphale as indicator Each milhitre of N/10 efter nitrate is equivalent to 0 003345 grammes of C

Storage Bismuth Ovychloride should be protected from light Preparation Injectio Bismuthi Oxychloridi

DOSES

Metrie 0 6 to 2 grammes Imperial 10 to 30 grains.

By intramuscular injection
0.1 to 0.2 gramme 11/2 to 3 grains.

BISMUTHUM PRÆCIPITATUM

Precipitated Bismuth

Page 91,

delete lines 23-25,

thect "Tests for Parify Descrice 3 grammes as 6 millistress of warm strice and, and pour the solution unto 100 millistress of variety. Effect, which and evaporate the filtrate and washings to 30 millistres, and again filter To 5 millistres of the filtrate of the control as alight excess of dutie solution of ammonia a white precipitate is produced, and the supernatant injust shown to blush tint (limit of copper).

I gramme of potassium chlorate Warm until solution is complete, adding more potassium chlorate if necessary. Boil nearly to dry nees to ensure that all the chlorane is expelled. Cool, and make up to 6 millilitres with hydrochlorae and Add 2 drops of solution of potassium solutie, no trubulty or opalescence as produced (limit of salver).

0.25 gramme, dissolved in 5 millilitres of mitra and, complies

with the limit test for chlorides

Arsenic limit, 10 parts per million ".

Arsenic timit, 10 parts per million "

Page 93, line 21,

BUCHU

Buch

after ' Ash, not more than 5 per cent ",

insert "Alcohol (25 per cent)-soluble extractive, not less than 20 per cent.".

CALCIFEROL [Calciferol] Calciferol

C₂₂H₄₂OH . Mol Wt 3963

Calcuferol may be prepared by the ultra violet irradiation of ergosterol in a suitable solvent. The product of the irradiation, after removal of the solvent, is dissolved in Alcohol (95 per cent) or other suitable organic solvent and strongly cooled The unchanged ergosterol, which separates is removed by filtration, and the solvent is removed from the filtrate by evaporation under reduced pressure, the residue is dissolved in pyridine, and warmed with a solution of 3 5-dimitroben oul chloride in pyridine Distilled Water is added , the mixture of 3 5-dinitrobenzoates which separates is thoroughly washed with Distilled Water, and recrystallised from Acetone until the specific rotation of the crystals in solution in benzene is (sodium light) + 57° to + 60°, (mercury light) + 68 5° to + 72 5° The calcufervl 3 5-dimitrobenzoate is then hydrolysed by boiling in alcoholic solution with a slight excess of sodium hydroxide, Distilled Water is added and the calciferol, which crystallises, is recrystallised from methyl alcohol, or other suitable solvent It contains in 1 milligram

40,000 Units of antirachitic activity (vitamin D)
Characters Colourless acicular crystals, adourless

Insoluble in water, readily soluble in alcohol (95 per cent) in ether, in chloroform and in accione soluble in 50 to 100

parts of vegetable oils

Titls for identity Dassolve 0.5 gramme in about 1 millities of dry pyrdine dissolve 0.5 gramme of 3.6-dinitroben.of chloride in about 2 millitires of dry pyrdine by warming on a water bath mux the solutions, and warm on a water bath for ten minutes Add 5 millitires of touler to the hot solution, filter and wash the precipitate with notice. Dassolve the precipitate in about 10 millitires of hot acctone cool, and allow to stand for a short time. Collect the activity 3.6-dinitro beamoute on a filter, wash with a bittle cold acctone, and drive districts. Hit's of 187°, appelle rotation of callefryi 3.5 dinitrobenous hit's of 187°, appelle rotation of callefryi 3.5 dinitrobenous in solution in ben.ene (mercury highl), +85.5° to +72.5°.

Melting point the substance being heated in an evacuated sealed capillary tube, 115° to 119° specific rotation. in a freshly prepared 4 per cent w/v solution in dehydrated alcohol (sodium light), + 102 5° to + 107 5°, (mercury light) + 122 5° to + 128 5°, ultra viclet absorption in deh idrated alcohol at 265mµ not below 460

Test for Purity Treat a 1 per cent w/v solution in alcohol (90 per cent) with an equal volume of a 1 per cent solution of dig tonin in alcol of (90 per cent) and allow to stand for twelve hours, no precipitate is produced (absence of ergosterol)

Assay Determine the antirachitic activity in relation to the Standard Preparation of antirachitic vitamin (vitamin D) by the biological assay of antirachitic utamin (utamin D) and

express the result in Units per milligram Storage Calciferol should be kept in hermetically scaled class containers, from which air has been evacuated or replaced

by an mert gas, protected from light, and stored in a cool place Preparation Liquor Calciferolis

DOSES

Metric

Imperial. Prophylactic (daily) for an infant

1/2400 to 1/1200 grain 0 025 to 0 05 milligram (1000 to 2000 Units)

Therapeutic (daily) for an infant

1/1220 to 1/820 grain 0-05 to 0 075 milligram (2000 to 3000 Units)

CALCII CHLORIDIIM

Calcium Chloride Page 97.

CaCl. 6H.O

delete lines 42-45.

insert ' When Calcium Chloride is prescribed for injection, twice the prescribed amount of Hydrated Calcium Chloride shall be dispensed

CALCII CHLORIDUM HYDRATUM

[Cale Chlorid Hydrat] Hydrated Calcium Chloride

Mol Wt 2191

Hydrated Calcium Chloride may be obtained by neutralising hydrochloric acid with calcium carbonate, and crystallising the product. It contains not less than 98 per cent. and not more than the equivalent of 102 per cent, of CaCl., 6H.O

Characters Colourless crystals, odourless, taste, slightly bitter Very deliquescent

Soluble in 0 25 part of water, and in 0 95 part of alcohol

(90 per cent) Tests for Identity Heated in a dry tube, it melts and water is

expelled Yields the reactions characteristic of calcium, and of chlorides

Tests for Purity A solution of 5 grammes in 20 milblitres of unter is clear and colourless This solution requires for pentral isation not more than 0.1 millilitre of either N/10 hydrochloric acid or 1/10 sodium hydroxide, solution of bromothymol blue being used as indicator (limit of free alkali and free acid)

Dissolve 5 grammes in 20 milhhtres of water and 1 milhhtre of hydrochloric acid, add a slight excess of dilute solution of ammonia filter, and wash, the residue, after being dried and gently ignited weighs not more than 0 001 gramme (hmit of aluminium, iron, phosphate and matter insoluble in hydrochlone said)

5 grammes complies with the limit test for sulphates

Arsenic limit, 2 parts per million Lead limit, 10 parts per

Assay Dissolve about 5 grammes, accurately weighed in sufficient water to produce 250 millilitres dilute 20 millilitres of this solution with 50 millilitres of touter, and titrate with A/10 silver nutrate, using solution of potassium chromate as indicator Fach millilitre of \$\lambda /10 silver nitrate is comvalent to 0 01090 gramme of CaCl. 6H.O

Storage Hydrated Calcium Chloride should be kept in a well

closed container

Sterilisation of a Solution A Solution of Hydrated Calcium Chloride for injection is sterilised by heating in an autoclave, or by Tyndallisation.

DOSES

Imperial.

By intramuscular injection. 006 to 02 gramme 1 to 3 grains.

> By Intravenous injection 10 to 30 grains

06 to 2 grammes

Metric

CALCII GLUCONAS (Calc Glucon)

Calcium Gluconate ICH.OH (CHOH), COO),Ca.H.O

Mol Wt 4483

Calcium Gluconate is the normal calcium salt of gluconic acid It contains not less than 99 per cent, and not more than the equivalent of 104 per cent, of C.H.,O.,Ca,H.O.

Characters A white, crystalline or granular powder odourless. tasteless

Slowly soluble in 30 parts of water at 25° soluble in about 5 parts of boiling water, insoluble in dehydrated alcohol, in ether, and in chloroform

Tests for Identity A 2 per cent w/v solution in water is neutral

Lields the reactions characteristic of calcium

To 1 millilitre of a 2 per cent w/v solution in water add 1 drop of test-solution of ferric chloride, a vellow colour is pro duced

To 5 milblitres of a warm 10 per cent w/v solution in water add 0 65 millilitre of glacial acetic acid and I millilitre of freshly distilled phenylhydrazine, and heat on a water both for thirty minutes, allow to cool and scratch the inner surface of the tube until cristals of eluconic acid phenylhydrazide been to form Filter the mass, dissolve it in 10 millilitres of hot water, add a small amount of decolourising charcoal and filter the filtrate to cool and scratch the inner surface of the tube white crystals are obtained, milling point, 200° to 202° with decomnosition

Tests for Purity Dissolve 0.5 gramme in 10 millilitres of hot water, add 2 millilities of dilute hydrochloric acid, and boil for about two minutes Cool, add 15 milhitres of solution of sodium carbonate allow to stand for five minutes and filter Add 5 millibres of the clear filtrate to about 2 millibres of solution of potassio-cupric tartrate, and boil for one minute. no red precipitate is formed (absence of dextrose, and of sucrose) 0.5 gramme complies with the limit test for chlorides

1-0 gramme complies with the limit test for sulphates Arsenic limit, 5 parts per million Lead limit, 10 parts per

million Assay Dissolve about 1 gramme, accurately weighed, in 100 millilitres of scater and 2 millilitres of hydrochloric scid, add a slight excess of dilute solution of ammonia, boil, and add 50 millilitres of solution of ammonium oxulate heat on a water

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bath for one hour, and filter off the precipitate, wash dry, mostern with sulphiric card, ignite gently, and weigh the residue. I gramme of the residue is equivalent to 3 293 grammes of C₁₇H₂₁O₂₈C₃H₂O

grammes of C₁₂H₂₁C₂₁C₂₁H₂O

Storage Calcium Gluconate should be kept in a well closed container

DOSES

Metric 2 to 4 grammes Imperial 30 to 60 grains.

to 4 grammes SU to 60 grains

CALCII HYDROXIDUM

Calcium Hydroxide

Page 98, line 16,

24

delete "and filter",

ansert "filter and wash the residue with water"

Ime 17,

delete 001",

hne 21.

delete "05",

delete 25',

CALUMBA

Calumba

Page 101, line 19,

after "Ash, not more than 9 per cent.", *** *** *** *** *** Alcohol (60 per cent)-soluble extractive, not less than 12 per cent **

CARBONEI DIOXIDUM

Carbon Dioxide

Page 104, delete lines 38-40, and Page 105, delete lines 1-7:

inser! "Tests for Parify. For the following tests the reagent is placed in a 100-millatire optimer, which has a height of about 70 centimetres and is closed with a stopper, containing an indetube, which has a bore not exceeding 0.5 millametre and passes to the bottom of the cylinder, and an exit tube. The gas is passed through the reagent at a rate of about 1 litre, measured at normal

temperature and pressure, in fifteen minutes.

Pass a volume equivalent to 500 millitres, measured at normal temperature and pressure, through 50 millitres of existent of soft um bicarlonate, and then through 80 millitres of exister to which 4 drops of solution of racibyl orange has been added. Then pass a volume equivalent to 500 millitres, measured at normal temperature and pressure, directly through one half of this methyl orange solution; the colour of the solution does not differ from that of the other half of the methyl orange solution (limit of acid, and of sulphur dioxide).

Pass a volume equivalent to 1000 millibries, measured at normal temperature and pressure, through a mixture of 22 millibries oddulino of silver nitrate, 7 millibries of dulute solution of ammonia and 20 millibries of ratter, no turbulity or darkening is produced (limit of phosphine, of byfrogen sulphide, and of organic reducing

substances) ".

CERA FLAVA Yellow Beeswax

Page 113, line 15, delete "40"; insert "42".

CHINIOFONUM

[Chinsofon.] Chiniofon

Synonym. Pulvis Chimofoni.

Chinison is a mixture of approximately four parts by weight of 7-10d0-8-hydroxyounolane-5-sulphone acid and one part by weight of Sodium Bicarbonate. It contains not less than 282 per cent, and not more than 296 per cent., of I, and not less than 18 per cent., and not more than 22 per cent., of NaHOO₂.

Characters A light yellow powder, odourless, taste, bittewith a sweetish after taste

Soluble, with effervescence in about 25 parts of water, insoluble in alcohol (9) per cent), in ether, and in chloroform

Insoluble in alcohol (9) per cent), in ether, and in chloroform Tests for Identity Decomposes when hested at about 275° When dilute hydrochloric acid is added to a saturated aqueous

When ditute hydrochloric acid is added to a saturated aqueous solution the colour changes from deep orange to pale yellow, and a yellow crystalline precipitate is slowly produced.

and a yellow crystalline precipitate is slowly produced.

To 10 millulities of a 1 per cent w/v aqueous solution add
5 drops of test-solution of ferric chloride, a deep olive-green

5 drops of test-solution of ferric chloride, a deep obve-green colour is produced.

To 10 millihtres of a 1 per cent w/v aqueous solution add

To 10 millitres of a 1 per cent w/v aqueous solution add 5 milhitres of solution of copper sulphate, a dense white precipitate is produced

Make 5 millilitres of a 1 per cent w/v aqueous solution slightly and with dilute hydrochloric and add 5 millilitres of chloroform and one drop of a 10 per cent w/r aqueous solution of sodium nutries, and shake, the chloroform is coloured violet

Test for Purity Make 5 multilitres of a 1 per cent aqueous solution slightly acid with dilute hydrochloric acid, and shake with 5 millilitres of chloroform, no violet colour appears in

the chloroform (absence of free rodine)

Assay For rodine. Mix about 0.2 gramme, accurately weighed, with about I gramme of anh idrous sodium carbonate in a mickel crucible 20 millimetres in diameter moisten with water, and dry at 100° Fill the crucible completely with anh drous sodium carbonate well pressed down, invert the crucible and contents into a nickel crucible, 25 millimetres in diameter, containing a layer of anhydrous rodium carbonate, and add more anhydrous sodium carbonate to seal the junction of the two crucibles Heat for fifteen minutes over a Bunsen flame in such a manner that the outer crucible is a uniform dull red allow to cool, and dissolve the residue in 100 millibres of hot water filter, and wash the filter with water until the washings are neutral to litmus. Allow the solution to cool, and add sufficient water to produce about 500 millilitres. \entralise the solution with sulphune acid (50 per cent r/r) using solution of methyl orange as indicator Add I millilitre sulphure acid (50 per cent s/s) 02 millilitre of bromine and a small piece (about 0.05 gramme) of marble and boil briskly for ten minutes. Allow to cool add 0 2 millihitre of a 20 per cent w/v solution of phenol in glacial acetic acid, and allow to stand for at least two minutes. Add 2 grammes of polastium todide, and titrate with A (10 sodium throsulphate, using mucilage of starch as indicator Each millilitre of A/10 sodium thiosulphate is equivalent to 0.002116 gramme of I

For sodium bicarbonate Place about 0 5 gramme, accurately

weighed, in a dry test tube 150 millimetres in length and 20 millimetres in diameter, and insert a loose plug of glass wool about half way down the tube Place the test tube in a 750 millibre filtering flash, containing 50 millibres of N/10 barrum hydroxide Close the neck of the flask with a stopper, through which passes the tube of a 50 millilitre separating funnel, in such a manner that the tube of the separating funnel enters the test tube Exhaust the flask rapidly until a pressure of 20 millimetres of mercury is obtained, and close the exit tube Through the separating funnel add gradually 10 millilitres of freshly boiled and cooled water, when effervescence has ceased, add about I millilitre of dilute hydrochloric acid, followed by two quantities of 5 millilitres of freshly boiled and cooled water Allow to stand for at least twelve hours, and titrate the excess of N/10 barrum hydroxide with N/10 oxalic acid, using solution of phenolphthalein as indicator Each millilitre of N/10 barrum hydroxide is equivalent to 0-0042 gramme of NaHCO.

Norz.-Solutions of Chiniofon are decomposed by boiling

DOSES Metric

0.06 to 0.5 gramme.

Imperial. 1 to 8 grains.

By rectal injection. 1 to 5 grammes

15 to 75 grains.

CINCHOPHENUM Cinchophen

Page 123. delete line 22:

1nsert "03 to 06 gramme.

5 to 10 grains.".

DIGITALIS PULVERATA

Powdered Digitalis

Page 111, line 9, delete "No. 20 powder";

insert "powder not more coarse than a moderately coarse poteder".

line 12.

delete "01": ansert "0 08".

ERGOMETRINA

[Ergomet]

Ergometrine

- -- - --

C1,H2,O2N2 Mol Wt 325 2

Ergometrine is an alkaloid, obtained from ergot and purified by crystallisation from a suitable organic solvent it occurs in two forms which are differentiated by their melting points. The crystals may contain a variable proportion of solvent of crystallisation.

Characters Colouriess crystals which become coloured on exposure to air or light, odouriess, taste, slightly bitter

Slightly soluble in scater, producing a solution which shows a blue fluorescence, moderately soluble in dehydrated alcohol, sparingly soluble in chloroform, moderately soluble in acetone, sparingly soluble in bename.

Tests for Identity Dessolve 0 001 gramme in 5 millibres of water, add slowly to 1 millibres of the solution 2 millibres of solution of dimeth flaminobenizaldehyde, and mix, a deep blue colour is produced.

Dissolve 0 001 gramme in I millihtre of glacial acetic acid, containing a trace of ferric chloride, and add 2 drops of sulphuric

and, a purphib blue colour is produced. Tests for Punit Meling pound of the lower melting form, determined on the air-dired substance the rate of rase of tem pertaine being 47 per minute, 182° to 164°, with decomposition, melting point of the higher melting form, determined on maternal which has been dread at 189° in reacon for one hour, 212° with decomposition, specific relations in a 15 per cent w/r solution in deligated alcohol, determined on the sur fined mustance and calculated with reference to the substance from which the accounted solvered has been monored [40]. The portion of associated solvers in determined by healing at 140° to zeros for one hour.

DOSES

Imperial

0 0005 to 0 001 gramme 1/120 to 1/80 grain

Metric

By intramuscular injection

0 00025 to 0 0005 gramme 1/200 to 1/120 grain
By intravenous injection

0 000125 to 0 00025 gramme. 1/450 to 1/240 grain

ERGOTA

Ergot

Page 151.

delete lines 37-45, and

Page 152,

delete line 1.

insert "volume Mix 1 millistre with 2 millistres of solution of dimethylaminoben.aidehyde, and allow to stand for five minutes Mix 1 millistre of solution of ergotomic ethinasulphonate with 2 millistres of solution of dimethylaminobenzidehyde, and allow to stand for five minutes. Determine the ratio of the

ERGOTOXINÆ ÆTHANOSULPHONAS

Ergotoxine Ethanesulphonate

Page 153, line 21,

delete "cool, ' and ' on exposure to light,".

line 28.

delete " + 112°",

EXTRACTUM BELLADONNÆ LIQUIDUM

Liquid Extract of Belladonna

Page 157, line 20,

delete "63 to 73",

EXTRACTUM ERGOTÆ LIQUIDUM

Liquid Extract of Ergot

Page 165,

after line 10, insert "CAUTION—In any part of the British Empire in which Liquid Extract of Ergot is controlled by law, care must be taken that the provisions of such law are duly complied with (See page 12)".

EXTRACTUM HYOSCYAMI LIQUIDUM Liquid Extract of Hyoscyamus

Page 173, line 38,

delete " 60 to 70".

insert "50 to 60 '.

EXTRACTUM PITUITARII LIOUIDUM

Pituitary (Posterior Lobe) Extract

Page 182, delete lines 40-44, and

detete intes 40-44, an

Page 183,

delete lines 1-9,

theref "Containers The containers of Pituitary (Posterior Lobe) Extract are either scaled glass ampoules or glass phials, scaled so as to allow the withdrawal of successive doses on different occasions. If containers of the latter form are used, Pituitary (Posterior Lobe) Extract contains a sufficient proportion of some antiseptus to prevent the growth of any organism, which may be accidentally introduced in the process of removing a portion of the contents of the container. The glass ampoules, or glass phials comply with the tests for limit of allatinity of glass.

comply with the tests for some of maining of public Storage. Futuatry (Posterior Lobe) Extract should be kept at as low a temperature as possible above its freezing point. Under these conditions the product may be expected to retain its potency for at least eighteen months after the date of manufacture, provided that the reaction has between the limits of pH 3 and pH 4.

that the reaction lies between the limits of pH 3 and pH 4

Labelling The label on each container states the number of

Units per millilitre
The label on the container, or the label or wrapper on the pack
age, states —(1) the date of manufacture, (2) the date after
which the preparation is not intended to be used.".

EXTRACTUM SENEGÆ LIOUIDUM

Liquid Extract of Senega

Page 183, line 30 delcte "44 to 54"

ansert "38 to 44"

EXTRACTUM STRAMONII LIQUIDUM

Ext Stramon Lig 1 Liquid Extract of Stramonium

Liquid Extract of Stramonium contains 0 25 per cent w/v of the alkaloids of Stramonium, calculated as hvoscyamine (limits, 0 225 to 0 275)

Stramonium, in moderately

coarse powder Alcohol (45 per cent)

1000 grammes a sufficient quantity

Exhaust the Stramonium by percolation with Alcohol (45 per cent), reserving the first 850 milhlitres of the percolate Remove the alcohol from the remainder of the percolate by distillation under reduced pressure at a temperature not exceeding 60°, evaporate the residue to a soft extract at a temperature not exceeding 60°, dissolve this in the reserved portion Determine the proportion of alkaloids in the liquid, thus obtained, by the Assay de scribed below To the remainder of the haund add sufficient Alcohol (45 per cent) to produce a Liquid Extract of Stramonium of the required strength Set aside for not less than twenty four hours, filter, if necessary

Assay To 20 milhlitres in a separator add 10 milhlitres of water and 2 millilitres of d lute solution of ammonia, and complete the Assay as directed under Tinctura Belladonnm', commencing with the words ' and shake with successive portions of chloroform

Alcohol content (determined by Method I), 28 to 40 per cent. v/v of ethyl alcohol

Preparation Tinctura Stramonu

DOSES

Metric 0 03 to 0 2 mil Imperial 1/2 to 3 minims

Liquid Extract of Stramonium contains in 0.0 m I 0.000 gramme and in 3 min ms about 1/120 grain, of the alkalo ds of Stramonium calculated as byoscramino

EXTRACTUM STRAMONII SICCUM

[Ext Stramon Sice]

Dry Extract of Stramonium

Dry Extract of Stramonium contains 1 per cent of the alkaloids of Stramonium calculated as hyoseyamine (limits 0.9 to 1.1)

Stramonium in moderately coarse

pouder 1000 grammes
Alcohol (95 per cent) of each a
Starch sufficient quantity

Percolate the Stramonium with Alcohol (95 per cent) until 4000 millihtres of percolate have been obtained Determine the proportion of total solids in the percolate by evaporating 20 millilitres drying the residue at 80°, and weighing Determine also the proportion of alkaloids in the percolate by the assay described below Having thus determined the proportion of total solids and of alkaloids in the percolate calculate the amount of each that the remainder of the percolate will yield. Calculate the amount of Starch that must be added to the percolate to produce a dry extract containing 1 per cent of alkaloids Add to the percolate a somewhat smaller amount of Starch than calculation has shown to be necessary, remove the alcohol evaporate to dryness under reduced pressure at a temperature not exceeding 60°, and dry finally in a current of air at 80° Powder the residue add the final necessary amount of Starch and triturate in a mortar until thoroughly mixed Pass the powdered Extract through a No 22 RIEVE

In making Dry Extract of Stranonum the Alcohol (95 per cent) may be replaced by Industrial Methylated Spuri, dulted so as to be of equivalent alcoholic stringth, provided that the law and the statutory regulations governing the use of Industrial Methylated Spirit are observed.

Assay. Carry out the Assay as directed under "Extractum Bellidonna Siccum". Each milhitre of N/50 sulphure acid is equivalent to 0 005784 gramme of hyoscyamine

Storage. Dry Extract of Stramonium should be kept in a small, wide-mouthed, well closed container, and stored in a cool place.

DOSES

Metric, Imperial.

0 015 to 0 06 gramme ¹/_A to 1 grain.

In post-encephalitic and similar conditions.

0 06 to 0 5 gramme. 1 to 8 grains.

Dry Extract of Stramonium contains in 0.00 gramme 0.0006 gramme, and in 8 grains about 8/100 grain, of the sikaloids of Stramonium, calculated as hyoseysmine.

FERRI ET AMMONII CITRAS

Iron and Ammonium Citrate

Page 186,

delete line 38;

insert "13 to 26 grammes. 20 to 40 grains".

delete lines 39 and 40;

insert "Iron and Ammonium Citrate contains in 26 grammes about 0-5 gramme, and in 40 grams about 8 grams, of iron".

FERRI SUBCHLORIDUM CITRATUM

[Ferr. Subehlorid. Cit.]

Citrated Ferrous Chloride

Citrated Ferrous Chloride is a preparation of ferrous chloride and citric acid. It may be prepared by the following method:—heat a mixture of equal volumes of Hydrochlorio

Acid and Distilled Water with an excess of Iron until the reaction ceases, determine the proportion of ferrous chloride in the solution by the Assay described below, dissolve in the solution a quantity of Citro Acid equal in weight to one tenth of the ferrous chloride present, fifter the solution evaporate to the consistence of a thick paste and dry at 80° It contains not less than 68 per cent of ferrous iron calculated as FcCl, and not more than 58 per cent of ferror iron calculated as FcCl,

Characters A buff coloured powder taste acid metallic and astroneent

Almost completely soluble in 1 part of water, readily soluble in dilute mineral acids

rests for Identity Yields the react one characteristic of ferrous salts of chlorides and of citrates

Tests for Purity 0.5 gramme dissolved in 3 millihitres of d lute hydrochloric acid complies with the limit test for sulphates

Arsenic limit 10 parts per million

Assay Forferous srom Dissolve about 0.5 gramme accurately weighed in 20 millitres of d late sulphure and and t trate with N/10 poinsessum d chromate using solution of poinsessum ferrican de as indicator Each millitre of N/10 poinsessum dehromate is equivalent to 0.01285 gramme of FeCI.

For ferrer troe Dissolve about I gramme accurately verghed in 29 millatures of vurter in a stoopperd vessel and add 15 millatures of hydrochloric acid and 2 grammes of polarism sof de Allow to stand for three minutes and tirate with \$\lambda{I}0\$ sodium thiosulphate Each millature of \$\lambda{I}10\$ sodium thiosulphate is equivalent to 0 01622 gramme of FeCJ.

Storage Citrated Ferrous Chloride should be kept in a well closed container, protected from light

DOSES

Metric Imperiat

0.2 to 0.3 gramme 3 to 5 grains

Citrated Ferrous Chloride contains in 0.3 gramme about 0-1 gramme and in 5 grains about 1½ grains of iron.

FERRUM

Iron

Page 190, lines 6 and 7, delete "(No 42 Standard Wire Gauge)"

HISTAMINÆ PHOSPHAS ACIDUS

[Histam Phosph Acid]

Histamine Acid Phosphate

Synonym Histaminæ Phosphas

C.H.N. 2H.PO.

Mol Wt 307 2

Histamine Acid Phosphate is the di acid phosphate of an organic base histamine, 4β aminoethylgivoxaline. It may be prepared by the action of phosphoric acid on histamine, which may be obtained from natural sources or by synthesis.

Characters Colourless crystals odourless

Soluble in 4.5 parts of water slightly soluble in alcohol (90 per cent.)

Tests for Identity An aqueous solution is acid to litmus

Dissolve 0.1 gramme in 7 millistres of rezer and add 3 millistres of eater and add 3 millistres of eater of eater hydrox de lassolve 0.0 gramme of eater of eater of eater of eater of the eater of hydroxlora card and add 2 drops of a 10 per cent value of eater of e

Dissolve 0.05 gramme in 5 milhitres of hot water and add 0 millilitres of a hot 0.5 per cent w/v solution of pierofonic acid in dicohol (25 per cent). The crystalline pierolonate deposited on cooling after washing with water and drying at 100° has a military point of 260° to 207°.

Lields the reactions characteristic of phosphates

Tests for Purity Melling point 130° to 133°, after sinting at

Dissolve 0.1 gramme in 2 milhitres of sulphuric acid—the solution is colourless (limit of readily carbonisable impurities)

02 gramme loses when dried in a vacuum desiccator, not more than 0 002 gramme

Sterilisation of a Solution A solution of Histamine Acid Phos phate for injection is sterilised by heat no in an autoclare by Tyndallisation or by filtration. The containers comply with the tests for limit of alkalimity of glass

DOSES

Metric

By subcutaneous injection

0 0005 to 0 001 gramme

Imperial, ection 1/120 to 1/60 grain. BRITISH PHARMACOPCEIA, 1932

HYDRARGYRI OXYCVANIDIM

Mercuric Oxycyanide

Page 205,

36

delete line 41:

insert "Almost completely soluble in about 18 parts of water" Page 206, line 6,

after "Tests for Purity ".

ansert "1 gramme, dissolved in 200 millilitres of water, gives a clear solution

Mercury with Chalk

HYDRARGYRUM CUM CRETA

Page 210, hne 31.

after ' cool dilute with 25 millilitres of water,".

ensert "add sufficient solution of polassium permanganate to produce a permanent pink colour Decolourise by the addition of a trace of ferrous sulphate,".

HYOSCVAMUS

Hyoscyamus

Page 213, line 32,

delete "80".

insert "30".

line 34.

delete "20".

ensert "15"

delete "3".

ansert "4".

lines 37-39.

delete "Mix the soid liquids, neutralise with dilute solution of ammonia, using limus as indicator, and evaporate in vacuo to about 50 millihtres at a temperature not exceeding 40° ".

Page 214, line 4, before "shake".

insert " without delay ".

line 5.

after "effected.".

ensert "carrying out the extraction as rapidly as possible and ".

INDICARMINUM Indigo Carmine

Page 216, after line 40.

ansert "Sterilisation of a Solution A solution of Indigo Carmine for injection is sterilised by heating in an autoclare, or by Tyndall sation

INFUSUM DIGITALIS RECENS Fresh Infusion of Digitalis

Page 221, line 23.

delete "5" ancort "A"

INTECTIO BISMUTHI Injection of Bismuth

Page 226, lines 35 and 36,

delete "Distilled Water, freshly redistilled from glass apparatus,", ansert "Sterilised Water.".

Page 227,

delete lines 1-9.

ensert "Dissolve the Dextrose and the Cresol in 50 millilitres of Sterilised Water, triturate the Precipitated Bismuth with the solution, and add sufficient Sterilised Water to produce the required volume Mix thoroughly, transfer to suitable sternised containers, in which are glass balls, and sterilise by heating in an autoclave, or by Tundallisation ".

INJECTIO BISMUTHI OXYCHLORIDI

fint Bism Oxychlor 1

Injection of Bismuth Oxychloride

Bismuth Oxychloride in teru

fine powder

Dextrose

Cresol Sterilised Water, sufficient to

produce

grammes 0.5 millilitre 100 millilitres

Imperial

10 grammes

5

Dissolve the Dextrose and the Cresol in 50 millilitres of Sterilised Water, triturate the Bismuth Oxychloride with the solution and add sufficient Sterilised Water to produce the required volume Mix thoroughly, transfer to suitable sterilised containers and sterilise by Tundallisation

DOSES

Metric

By intramuscular injection

1 to 2 mils 15 to 30 minims

Injection of Bismuth Oxychloride contains in 2 mils 0-2 gramme, and in 30 minims about 3 grains of Bismuth Oxychloride.

INJECTIO BISMUTHI SALICYLATIS

Injection of Bismuth Salicylate

Page 227, line 27,

after 'solution' insert in a sterilised mortar"

hne 29

after "containers,". insert 'seal

INJECTIO MERSALYLI

[In: Mersaly!]

Injection of Mersalvl Mersalyl 10

grammes Theophylline grammes Sodium Hydroxide

0 05 gramme or a sufficient quantity

100

Sterilised Water, suffi cient to produce millilitres

Add the Mersalyl to about 80 millilitres of Sterilised Water When solution has been effected, add the Theophylline, and stir until dissolved, without the aid of heat Dissolve the Sodium Hydroxide in about 2 millilitres of Sterilised Water and add sufficient of the solution to the solution of Mersalyl and Theophylline, until 1 drop of the resulting solution gives a green colour with 1 drop of solution of bromothymol blue, and a full yellow colour with I drop of solution of thymol blue Then add sufficient Sterilised Water to produce the required volume thoroughly, clarify the solution by filtration through a filter candle, transfer to suitable sterilised containers, and sterilise by heating in an autoclave for twenty minutes at 110°, or by Tundallisation

Storage Injection of Mersalvl should be protected from light.

DOSES

Metric

05 to 2 mile

Imperial R to 20 minime

Injection of Mersalyl contains in 2 mils about 0-2 gramme of Mersalyl, and about 0-1 gramme of Theophylline and in 30 minims about 3 grains of Mersalyl, and about 11 grains of Theophylline

INJECTIO SODII CHLORIDI ET ACACIÆ

Injection of Sodium Chloride and Acacia Page 230, line 29,

delete "Distilled Water, freshly prepared", ensert "Sterilised Water".

40 Page 230, line 31,

delete " Distilled " insert "Sternheed"

line 33. delete "Distilled". insert "Sterilised'

Page 231.

delete lines 5-9.

insert " paper and linen, and transfer to glass containers Close the containers so as to exclude bacteria, and sterilise by heating in an autoclare"

INSULINUM

Insulin

Page 231, Ime 24,

after "60 per cent v/v", ensert ", together with a sufficient quantity of Hydrochloric Acid to make the reaction of the mixture not less than pH 30 and not more than pH 35".

Page 232.

delete lines 11-16.

insert " between limits corresponding to the values pH 3 and pH 4 To the acidulated water used for dissolving the powder, it is usual to add a sufficient proportion of some antiseptic to prevent the growth of any organism, which may be accidentally introduced in the process of removing a portion of the contents of the container The solution is sterilised "

delete lines 19 and 20

hnes 31-37.

delete 'The label on each container states the number of Units per milhhtre, and the date of manufacture' and the para graph on "Storage".

ensert "Storage Insulin in solution should be kept at as low a temperature as possible above its freezing point, and should

41

ADDLADUM, 1930—MUNUGRAPHS

not be exposed to temperatures exceeding 20°. Under these conditions the product may be expected to retain its potency for at least eighteen months after the date of manufacture, provided that the reaction lies between the limits of pH 3 and pH 4. Labelling. The label on each container states the number of

Units per mililitre.

The label on the container, or the label or wrapper on the pack age, states —(1) the date of manufacture, (2) the date after which the preparation is not intended to be used ". Page 233.

delete lines 17 and 18,

insert "When Insulin is prescribed, Insulin in solution, containing 20 Units per millilitre, shall be dispensed, unless a solution of some other strength, or Insulin in tablet form, is specified.".

IODOFORMUM

Iodoform

Page 233, line 32,

delete "sparingly soluble in benzene", insert "soluble in 75 parts of benzene".

IPECACUANHA

Ipecacuanha

Page 237, line 25,

after 'sbake well",

insert "and frequently during fifteen minutes".

LACTOSUM

Lactose

Page 213,

delete lines 18-21;

insert "Shake 5 grammes with 20 millilities of alcohol (90 per cent) for ten minutes, and filter, 10 millilities of the filtrate, evaporated to dryness, leaves not more than 0.005 gramme of resulte (limit of more soluble sucars)".

BRITISH PHARMACOPŒIA, 1932 LINIMENTUM BELLADONNÆ

Liniment of Belladonna

Page 248, line 9, delete ' 70 to 75'.

42

insert "60 to 70".

LIQUOR ADRENALINÆ HYDROCHLORIDI

Solution of Adrenaline Hydrochloride

Page 251, after line 17.

unsert * CAUTION — In any part of the British Empire in which Solution of Adrenatine Hydrochloride (Epinephrine Hydrochloride Solution) is controlled by law, care must be taken that the provisions of such law are duly complied with (See Pages 12) *

line 19, to the "Synonyms"

add "Epinephrine Hydrochloride Solution".

LIQUOR CALCIFEROLIS

[Liq Calciferol

Solution of Calciferol

Solution of Calciferol is a solution of calciferol in oil It contains in 1 gramme 3000 Units of antirachitic activity

(vitamin D)

Solution of Calciferol may be prepared by warming to 40° a I per cent suspension of Calciferol in a suitable egetable oil, such as Arachis Oil, Carbon Dioxide being bubbled through it in order to facilitate solution, and by adding a sufficient quantity of the oil to produce a solution of the required strength

Assay Determine the antirachitic activity in relation to the Standard Preparation of antirachitic vitamin (vitamin D) by

the biological assay of antirachilic vitimin (vitamin D), and express the result in Units per gramme Storage. Solution of Calciferol should be kept in a well closed container, protected from light, and stored in a cool place Labelling The label on the container states the number of Units of antirachilic activity (vitamin D) in 1 gramme

DOSES

Metric Imperial Prophylactic (dally) for an infant 03 to 06 mll 5 to 10 minims. (1000 to 2000 Units)

Therapeutic (dally) for an infant OB to t mil 10 to 15 minims.

(2000 to 3000 Units) Solution of Calciferol contains in 1 mil about 3000 Units and in 15 minims about 3000 Units of antirachitic activity

LIOUOR CRESOLIS SAPONATUS

Solution of Cresol with Soan Page 258.

delete lines 23 and 24. insert "Miscible in all proportions up to 10 per cent v/v. with water, and in all proportions with alcohol (90 per cent)".

Solution of Irradiated Ergosterol

LIOUOR ERGOSTEROLIS IRRADIATI Pages 259 and 260,

delete this monograph.

LIOUOR FERRI PERCHLORIDI

Solution of Ferric Chloride Page 261, line 6,

after ' water.". susert "add 5 grammes of ammonium chloride.". LIQUOR IODI AQUOSUS [Liq Iod Aquos]

Aqueous Solution of Iodine

Synonyms Lugol's Solution Liquor Iodi Compositus Aqueous Solution of Iodine contains 5 per cent w/v of Iodine (limits 49 to 51) and 10 per cent w/v of Potas

sium Iodide (limits 98 to 102) Todine

50 grammes

Potassium Todide Distilled Water sufficient to pro 100 grammes

duce

44

1000 milhlitres

Dissolve the Potassium Iodide and the Iodine in 100 millilitres of Distilled Water add sufficient Distilled Water to produce the required volume

Assay Dilute 25 millibres with easter to 100 millibres For sodine To 20 millilitres of the diluted solution add 10 millihtres of water and titrate with N/10 sodium thiosulphate. Each millilitre of A/10 sodium thiosulplate is equivalent to

0 01269 gramme of I For potassium sodide To 10 milliptres of the diluted solution add 20 milhlitres of water and 40 milhlitres of hydrochloric acid and titrate with M/20 potassium sodate shaking vigorously until the dark brown solution becomes only light brown in colour add 5 millilitres of chloroform and continue the titration until the chloroform becomes colourless and the supernatant haund is clear yellow. From the quantity of M/20 potassium sodate required subtract one quarter of the quantity of 1/10 sodium thiosulphate required in the assay for rodine Each milhitre of M/20 potassium vodate is equivalent to 0 0166 gramme of KI

Storage Aqueous Solution of Iodine should be Lept in a well

closed, glass stoppered bottle. Metric 03 to 1 mil

DOSES

Imperia! 5 to 15 minims

Aqueous Solution of Iodine contains in 1 mil 0.05 gramme of Iodine and about 0-13 gramme of total sodine free and combined and in 15 minims about 4/s grain of Iodine and about 2 grains of total iodine free and combined.

ADDENDUM, 1936—MONOGRAPHS LIOUOR IODI SIMPLEX

Simple Solution of Iodine

Page 266, last line, delete 0.0005 insert 0.002 .

LIQUOR SODII CHLORIDI PHYSIOLOGICUS

Physiological Solution of Sodium Chloride

Pages 273 and 274

delete this monograph,

LIQUOR SODII CHLORIDI PHYSIOLOGICUS

[Liq Sod Chlorid Physiol]
Physiological Solution of Sodium Chloride

Synonyms Physiological Saline Solution Normal Saline Solution

Sodium Chloride . 9 grammes
Distilled Water, sufficient to pro

duce 1000 millultres

Dissolve, filter sterilise by heating in an autoclaire, or by Tyndallisation, or by filtration

Physiological Solution of Sodium Chloride for Injections
Physiological Solution of Sodium Chloride if it is intended
for injection, is prepared with Sterilised Water

Physiological Solution of Sodium Chloride for Injections, kept in a container which is closed with cotton wool is used within one month after its preparation. If kept in a container which is sealed by fusion of the glass, or by some equally effective method, it may be stored for a longer period.

MENTHOL

Menthol

Page 281, line 34,

after " Mentha",

insert ", or prepared synthetically ".

Page 282, line 1, delete "43°".

insert "44°".

line 2,

delete "lavo rotatory, and', after "litmus",

theset' Specific rolation, in a 10 per cent solution in alcohol
(90 per cent), -49° to -50°"

MERSALYLUM

[Mersal]

Mersalyl

(HgOH)CH, CH(OCH,)CH, NHCO C,H, O CH, COONa Mol Wt 5057

Mersalyl is the sodium salt of saheyl (ρ hydroxymercunβ methoxypropyl) amide O acetic scid. It may be prepared by the action of mercunc acetate and methyl alcohol on saheylallylamide O acetic acid, and subsequent conversion to the sodium salt. It contains not less than 25 per cent, and not more than 28 per cent, of N, and not less than 38 5 per cent, and not more than 40 5 per cent, of Hg, both calculated with reference to the substance dired m a vacuum desiccator

Characters A white powder, odourless, taste, bitter Deh

quescent
Soluble in about I part of water, and in about 3 parts of
alcohol (95 per cent), insoluble in ether, and in chloroform,
soluble in about 2 parts of methyl alcohol

Tests for Identity Dissolve 0.5 gramme in 1 millihitre of scaler, add 1 millihitre of formic acid, and boil under a reflux condenser for fifteen minutes Decant while hot, allow the liquid to

cool, and collect the crystals of saleylallylamide O acetic acid; melling point of the crystals, after washing several times with water and drying in a vacuum desiceator, 110° to 121°
Dissolve O 2 gramme in 15 millibites of water, add 5 milh

Dissolve 0.2 gramme in 15 millulities of water, add 5 millilities of hydrochloric acid, and distil 5 millilities, the distillate, when tested for methyl alcohol as described under 'Alcohol'.

gives a deep violet colour

Tests for Purity Dissolve 0.5 gramme in 10 millihtres of water, and add 2 drops of colution of sodium sulphide, no colour is produced (himit of mercune salts and heavy metals)

Dissolve 0 1 gramme in 5 millilitres of water, add 2 drops of nitric acid, filter, and add 2 drops of solution of silver nitrate, no immediate opalescence is produced (limit of chloride)

Dissolve 0 1 gramme in 5 millilitres of water, add 2 drops of hydrochloric acid, filter, and add 2 drops of solution of barium

chlorade, no immediate turbidity is produced (limit of sulphate)
Dissolve 0.5 gramme in 10 milliatres of water, add 1 milli
litres of didute sulphane acid, filter, and add 0.05 milliatres of
N110 potassium permanganate no immediate decolorisation
is produced (limit of foreign organic matter)

Arsenic limit, 10 parts per million

Loses, when deed in a vacuum desiceator, not more than 7 per cent of its weight

Assay For nitrogen IIest in a long necked flask about 04framme, accumtely weighed, with I gramme of polassum sulphate and 5 millilitres of nitrogen free sulphure acid until a clear colouriess liquid to obtained: Cool, dultie with water, transfer to an amount distillation apparatus, add I gramme of sedium hydroxide, and distill this liberated amounts into 30 soulimities of N/50 sulphure cent, trities the excess of said millitres of N/50 sulphure cent, trities the excess of said indicator. Each millitire of A/50 sulphure ocid is equivalent to 0-00028 gramme of N.

For mercury Dasolre about 0.5 gramme, accurately weighed, in Omiliktres of vater, and 15 milliktres of vater chald 15 milliktres of vater chief or acid, boil under a reflux condenser for three hours, and 200 milliktres of bot vater, and pass in hydrogen sulphate for fifteen munites. Filter while hot through a Gooch curoble, wash the precupitate first with existing of playopen sulphate was the precupitate first with existing of playopen sulphate of the play of the property o

valent to 0 5022 gramme of rig Storage Mersalyl should be kept in a well closed container Preparation. Injection of Mersalyl

Solutions of Mercalyl, containing sodium chloride or other salt, may become toxic unless some substance, such as theophylline, which in hibits the decomposition of the mercurial complex, is present. For injections Injection of Mersalyl should be used.

METHYLIS SALICYLAS

Methyl Salicylate

Page 282, line 33,

after "volatile oils".

insert ", omiting the preliminary neutralisation of the free and with N/10 agrouse potassive m kyloroxic, boining for one and a half hours, and deducting, from the difference between the tits tions, the volume of N/2 abouble potassive hydroxic equivalent to the volume of N/10 solum kydroxic equivalent to the volume of N/10 solum kydroxic required in the test for limit of free acid"

NEOARSPHENAMINA

Negarsphenamine

Page 292,

delete line 7.

insert ", and the solution is used immediately after prepara-

OLEUM ABIETIS

Oil of Siberian Fir

Page 297, line 20,

delete "35 per cent w/w";

OLEUM CAJUPUTI

Oil of Cajuput

Page 301, line 8,

delete "60 per cent w/w";
insert "65 per cent w/w".

line 14,

delete "1 462"; insert "1 464"

OLEUM CHENOPODII

Oil of Chenopodium

Page 303, line 13,

delete "0 960 to 0 980" unsert "0 962 to 0 983".

OLEUM IODISATUM

[Ol Iodisat]

Iodised Oil

Iodised Oil is an iodine addition product of poppy seed oil, and may be prepared by treating poppy seed oil with hydrodic acid It is placed in previously sternlised continuers, which are filled as completely as possible and then scaled so as to exclude bacteria. It contains not less than 39 per cent, and not more than 41 per cent, of combined iodine.

Characters A colourless or pale yellow, clear, viscous, oily liquid, odour, slightly alliaceous, taste, bland and oily

On exposure to air and sunlight, it decomposes and develops a dark brown colour Insoluble in water, soluble in ether, in chloroform, and in light

Insoluble in water, soluble in ether, in ethoroform, and in ligh petroleum Tests for Identity Specific gravity (15 5°/15 5°), about 1 34

Tests for Identity Specific gravity (15.5"/15.5"), about 1.31
Boil I drop with 2 millitires of glacual actic acid and 0.1
gramme of zinc powder for two minutes add 5 millitires of water, shake, decant from any undissolved zinc, and add 1 millitire of adultion of hydrogen persuate, tokino is liberated

millitre of solution of hydrogen peroxide, rotino is liberated Tests for Purity Shako I grammo with 10 millibras of warm alcohol (95 per cent), previously neutralised to phenolphihalem, and titrate with \(\frac{1}{1}\)/10 column hydroxide, using solution of phenolphihalem as indicator, not more than I millilitre is required (limit of each)

Dissolve I gramme in 10 millibites of ether, and add I drop of edution of ammonium hydroxulphide, no darkening is produced (absence of mercury)

Dissolve I gramme in 20 millihites of acetone, add I gramme of sedium sodice, and act aside in a stoppered flask in the dark for thirty minutes, shaking occasionally, then add 50 milli-

litres of water, and titrate with N/10 sodium throsulphate,

using mucilage of starch as indicator, not more than 0.5 milli litre is required (limit of chloro-todine compounds)

Dissolve I gramme in 5 millilitres of chloroform, add I gramme of potassium codide dissolved in 20 millilitres of water, shake, and titrate with N/10 sodium thiosulphale, not more than 0.1 millilitre is required (limit of free jodine)

Complies with the tests for sterility Assay Boil about 1 gramme, accurately weighed, with 10 mills litres of glacial acetic acid and I gramme of zine powder for one hour under a reflux condenser Add through the con denser tube 30 milhlitres of hot water, filter through cotton wool, wash the flask with two quantities of 20 millilitres of hot water, and pass the washings through the filter Cool the filtrate, add 15 millilitres of hydrochloric acid and 5 millilitres of solution of potassium cuanide, and titrate with M /20 potas sum sodate until the dark brown solution, which is formed, becomes light brown, add 5 millilitres of mucilage of starch, and continue the titration until the blue colour disappears Each mulhitre of M/20 rotassium sodate is comvalent to

0-01269 gramme of I Storage Iodised Oil should be kept in a well filled container,

OLEUM LAVANDULÆ

Oil of Lavender

Page 308 line 2, delete "14 per cent w/w"; insert "12 per cent w/w".

protected from light

OLEUM LIMONIS

Oil of Lemon

Page 308.

after line 30.

ensert "5 grammes, when evaporated rapidly in a flatbottomed dish, 9 cm in diameter and 15 cm. in depth, on a boiling water bath, leaves not less than 0 1 gramme, and not more than 0 15 gramme, of non volatile residue ".

OLEUM MENTHÆ PIPERITÆ

Oil of Peppermint

Page 309, line 31, delete "45", insert "4-0".

line 41,

delete "0 910";

line 42.

delete " - 32°"

insert " - 30°".

OLEUM MORRHUÆ

Cod-liver Oil

Page 310,

delete this monograph,

OLEUM MORRHUÆ

[Ol Morrh]

Cod-liver Oil

Cod liver Oil is the oil, obtained from the fresh liver of the cod, Gadus morrhua Linn, and other species of Gadus, and freed from solid fat by filtration at about 0° It contains in I gramme not less than 600 Units of vitamin A activity, and not less than 83 Units of antirachitic activity (vitamin D)

Characters A pale yellow liquid, odour, slight, but not rancid, taste, bland or slightly fishery.
Slightly soluble in alcohol [39 per cent], muscible with there, with chloreform, and with light petroleum (bollong point, 50% to 60%).
Tests for Portily Specific gravity [15.57/15.57] 0.4022 to 0.920,

Tests for Purity Specific granty (155°/155°) 0-922 to 0 929, refractive index at 40°, 1-4705 to 1-4745, and value, not greater

BRITISH PHARMACOPŒIA, 1932

than 12, saponification value, 180 to 190, unsaponifiable matter, not more than 1 5 per cent, sodine value, 155 to 173 Remains bright when cooled to 0° and kept at that temper ature for three hours

Assay For sitamin A activity Determine the vitamin A activity in relation to the Standard Preparation of Vitamin A by the assay of ritamin A, and express the result in Units

per gramme

52

For antirachitic activity (vitamin D) Determine the antimentic activity in relation to the Standard Preparation of antirachitic vitamin (vitamin D) by the biological assay of antirachitic entamin (titamin D), and express the result in Units

per gramme Storage Cod liver Oil should be kept in a well filled, well closed container, and protected from light

Preparation Extractum Malts cum Oleo Morrhuse

DOSES

Metric

Prophylactic 15 to 30 minims.

Imperial

three times dally

Therapeutic 45 to 90 minims. 3 to 6 mils

three times daily

OLEUM MYRISTICÆ

Oil of Nutmer

Page 311,

delete lines 11 and 12;

1 to 2 mils

ensert "2 grammes, when evaporated rapidly in a fiatbottomed dish, 9 cm in diameter and 15 cm in depth on a boiling water bath, leaves not more than 0 060 gramme of non volatile residue".

OLEUM OLIVÆ

Olive Oil

Page 311.

delete lines 32 and 33. ensert "Complies with the tests for the absence of cotton-seed oil, and of araches oil

Complies with the test for the absence of seame oil, after shaking together equal volumes of the oil, and of a mixture of 9 parts by volume of alcohol (30 per cent) and 1 part by volume of strong solution of ammonia, and heating on a boiling water bath until free from alcohol and ammonia."

OLEUM ROSMARINI

Oil of Rosemary

Page 312, line 36, delete "1 464", insert "1 466".

OLEUM SANTALI

Oil of Sandal Wood

Page 313, line 23, delete "1 500", snsert "1 505".

OLEUM TEREBINTHINÆ Oil of Turpentine

Page 315, line 20,

delete "dry".
snsert "previously dried".
delete "add".

insert "containing".

Page 315, lines 22 and 23, delete "laboratory temperature"; **insert "15" to 20".

OXYGENIUM

Oxygen

Page 319.

delete the last two lines, and

Page 320,

delete lines 1 and 2:

ensert "Complies with the test for limit of acidity and alkalınıty described under 'Nitrogenii Monoxidum'.".

PARAFFINUM LIQUIDUM

Liquid Paraffin

Page 324.

delete lines 16 and 17:

ensert "kinemalic riscouls, not less than 64 centistokes at 37 8° "

delete lines 20-23:

snsert "Place 5 millilitres with 5 millilitres of nitrogen free sulphure acid in a test tube, 120 millimetres in length and 20 millimetres in internal diameter, which is fitted with a plass storner and is graduated at 5 and 10 milhitres, and which has been carefully cleaned and dried. Insert the stopper, and shake as vigorously as possible, in the longitudinal direction of the tube, for five seconds Loosen the stopper, place the tube immediately in a boiling waterbath, supporting it so as to prevent contact of the tube with the bottom or side of the bath, and heat for ten minutes At the end of the second, fourth, sixth and eighth minutes, remove the tube from the bath, and shake as vicorously as possible, in the long tudinal direction of the tube, for five seconds. At the end of ten minutes transfer the liquids to a small dry separator with ungreased tap, allow to stand for ten minutes, and run off the lower layer into a colourless rectangular glass cell of 10 millimetres internal measurement in the direction of observation. Place the cell in a colormeter, designed for matching the colour of the solution against colour glasses, and compare the colour of the test hourd with the colour given by the combination of the colour classes for the sulphune acid test on liquid parafin. The colour of the test liquid is not deeper than the combined colour of the prescribed glasses, neither with respect to the red component por with respect to the yellow component ",

PHENOL LIQUEFACTUM Liquefied Phenol

Page 333, line 32,

after "light",

insert "Laquefied Phenol may congeal or deposit crystals, if stored below 4°. It should be completely melted before use '.

PHENOLPHTHALEINUM

Phenolphthalein

Page 334, line 15, delete "254" to 258"

insert ' not below 258° '

PLUMBI ACETAS

Lead Acetate

Page 312, line 3, delete "1'.

insert "2".

POTASSII BICARBONAS

Potassium Bicarbonate

Page 318, line 14,

after "grammes", tnscrt ", dissolved in 20 millilitres of dilute nitric acid FeT ,".

POTASSII CARBONAS

Potassium Carbonate

Page 350, Ine 11,

after 'gramme",

insert ', dissolved in 10 millilitres of dilute nitricacid FeT ,".

POTASSII CITRAS

Potassium Citrate

Page 351.

delete lines 33-36.

insert "Tests for Parity 2 grammes, boiled with 25 mills literated of scaler and cooled, requires for neutralisation not more than 0.5 millshire of either N/10 selpheneard or N/10 selphenylarized, solution of flymol Use being used as indicator (limit of alkalinity, or of acidity).

POTASSII HYDROXIDUM

Potassium Hydroxide

Page 352, line 28,

after "KOH",

msert "It contains not more than 4 per cent of K_4CO_3 "

line 32.

delete 'Soluble in 0.95 part of scater, and".

insert "Completely, or almost completely, soluble in 0.95 part of water, soluble".

lines 35-39.

delete the test for "limit of carbonate .

Page 353.

delete lines 11-15:

insert "Assay Dissolve about 2 grammes, accurately begled, in 25 millibites of water, add 5 millibites of solution of barrum chloride, and titrate with N/I hydrochloric acid, using solution of phenolphthalen as indicator

To the solution in the flask add solution of bromorphenol blue, and continue the titration with \$\lambda I \text{ hydrochloric acid}\$ Each milli litre of \$\lambda I \text{ hydrochloric acid}\$ used in the second titration is equivalent to \$0.000 gramme of \$\text{K}_1 \text{CO}_2\$

Each millilitre of N/1 hydrochloric acid used in the combined titrations is equivalent to 0.05611 gramme of total alkalı, calcu

lated as KOH.".

PULVIS VITAMINI B. Puly Vitamin Bil

Adsorbate of Vitamin B.

Adsorbate of Vitamin B, is an adsorbate of the antineuritic vitamin (vitamin B.) upon fuller's earth It con tains in 1 gramme 100 Units of antineuritic activity (vita min B.)

It may be prepared from nee polishings, yeast, wheat embryo, or other suitable materials. The method of preparation from rice polishings is as follows -The material is extracted with Distilled Water, sufficient Dilute Sulphuric Acid being added to make the pH 45 Salicylic Acid to a concentration of 0.2 per cent and toluene are then added to prevent bacterial decomposition. The process of extraction is continued for two days after which the solution is filtered. For each 100 kilograms of the original rice polishings, 3 kilograms of fuller's earth is added to the solution, which is then stirred for twenty four hours Subsequently, the solution is filtered off and the powder, after being washed with Distilled Water and Dehydrated Alcohol, is dried The powder is assayed, and adjusted to contain 100 Units in 1 gramme by thorough mixture with an adsorbate containing more than 100 Units in I gramme, or with fuller's earth

Characters A cream coloured powder, almost odourless. tasteless

Insoluble in water and in mineral soids.

Assay Determine the antineuntic activity in relation to the Standard Preparation of antineuritic vitamin (vitamin B.) by the biological away of antineuritic vitamin (vitamin B.) and express the result in Units per gramme

Storage Adsorbate of Vitamin B, should be kept in a wellclosed container

DOSES

Imperial. Prophylactic (dally)

Metric 1 to 2 crammes

15 to 30 grains. (100 to 200 Units).

Therapeutic (dally)

2 to 6 grammes. 30 to 90 grains,

(200 to 600 Units)

PYROXYLINUM Pyroxylin

Page 363, line 3. delete " Visconty". insert "Kinematic riscosity".

line 4. delete "3 poises".

insert "370 centistokes".

QUININÆ ET ÆTHYLIS CARBONAS

Ouinine Ethyl Carbonate

Page 368, line 15, delete "900". insert "90°".

RHEUM

Rhuharh

Page 374, line 2,

after "dried".

insert " It is known in commerce as Shensi, Canton, or high-dried rhubarb ".

line 6.

delete "but not shrunken".

ensert "not discoloured or lacunose internally". Ine 26.

delete "Ash not more than 15 per cent". ensert " Acid insoluble ash, not more than 1 per cent ".

Page 374,

after line 27.

ensert ' When examined in screened ultra violet radiation with a lens, no shining violet points are visible (limit of rhapontio rhubarb)'.

SAPO ANIMALIS

Curd Soap

Page 378, hne 8.

before "of N/10 sodium hydroxide", insert "not more than 0.4 millilitre".

line 19.

delete "0 025";

insert "0 04".

delete "about 20 grammes",

SAPO DURUS

Hard Soap

Page 379, line 5,

nfter "acid,",

line 6.

nne

delete "and for limit of free fat,", after "'Sano Animalis'".

insert "Carry out the test for limit of free fat, described under 'Sapo Animalis', the weight of the residue does not exceed 0-05 gramme (limit of free fat)"

lines 14 and 15.

delete "solidifying point, 18° to 23°, ".

lines 15 and 16, after "acid value.".

insert "determined on 2 to 3 grammes of the fatty acids,".

SAPO MOLLIS

Soft Soap

Page 380, line 10, delete "02";

incert "O.1"

delete hnes 16 and 17;

insert "Carry out the test for limit of free fat, described

under 'Sapo Animalis', the weight of the residue does not exceed 0.0379 gramme (limit of free fat)'.

SERUM ANTIPNEUMOCOCCICUM I

[Serum Antipneumococc I]

Antipneumococcus Serum (Type I)

CAUTION—In any part of the British Empire in which Antipneumococcus Serum (Type I) is controlled by law, care must be taken that it e provisions of such law are duly complied with (See British Pharmacopena, 1932, page 12)

Antipneumococcus Serum (Type I) is serum or a preparation from serum containing the immune substances which have a specific therapetin action, when injected into persons suffering from certain diseases due to Diplococcus menumus thug I

It is prepared by separating the serum from the blood of animals, which have been immunised by graded injections of cultures of Diplococcus pneumonia (type I). The serum may be used in the liquid form, or may be dired. The globulins, containing the specific immune substances, may be obtained from the serum by fractional precipitation and the precipitate may be used either in solution, or dired. The final sterile product, whether serum, dired serum, solution of globulins, or thred globulins is discribidted in sterilised glass containers which are sealed so as to exclude bacteria. An antiseptic may be added to the louid forms.

Character The logad serum as yellow or yellowals brown. The solution of the plobbins as yellowis hown or greenish yellow. Both biquid forms are initially transparent, but acquire with age a faint opalescence. They are almost odouries except for the colour of any antiseptic which may have been added. The solid forms are yellowish white powders, or yellowish brown flakes. When dissolved in 10 parts of weter, they resemble the liquid forms in colour and appearance. The liquid serum does not contain more than 10 per cent. w/r of solid matter. The solution of the globulins does not contain

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more than 20 per cent w/v of solid matter. The solid forms

do not contain anti-optic, or other added substance Test for Identity. It protects susceptable animals from the lethal

action of a virulent culture of Diplococcus mneumonia (tupe I) Tests for Purity. All forms comply with the tests for eterility
All forms comply with the tests for freedom from abnormal

tomertu

Assay Determine the potency in relation to the Standard Preparation of antipneumococcus serum (type I) by the bio logical array of antipneumococcus serum (type I), and express it in Units per millilitre for liquid preparations, and in Units per gramme for solid preparations

Storage Antipneumococcus Serum (type I) should be kept at as low a temperature as possible above its freezing point

Labelling. The label or wrapper on the package, or the label on the container, states -(1) whether the product is scrum, dried serum, solution of antitoxic globulins, or dried antitoxic globulins (2) the date after which the preparation is not intended to be used

The label on the container states -(1) the minimum total number of Units in the container. (2) either (a) the number of Units in 1 millilitre, or in 1 gramme or (b) the total number of millilitres of liquid or grammes of dried product, in the container

Antipneumococcus Scrum (type I) should not be used later than

two years after the date of manufacture DOSES By intravenous injection

50,000 to 150,000 Units.

SERUM ANTIPNEUMOCOCCICUM II

[Serum Antipneumococc II]

Antipneumococcus Serum (Type II)

CAUTION -In any part of the British Empire in which Antipneumococcus Serum (Type II) is controlled by law, care must be taken that the provisions of such law are duly complied with (See British Pharmacopana, 1932, page 12.)

The mode of preparation, Characters, Test for Identity, Tests for Purity, Assay, Storage, Labelling and Doses are the same as for Antipneumococcus Serum (Type I) with 62

the modification that suitable strains of Diplococcus pneumonia (type II) are used in the preparation and Assay of the serum

SODII CITRAS

Sodium Citrate

Page 393, delete the last two lines, and

Page 394, delete lines 1-3;

theert "Tests for Purity 2 grammes boiled with 25 mills litres of water and cooled, require for neutralisation not more than 0.5 millaitres of either N/10 salphure cach, or N/10 sedum hydrox ide solution of thymol blue being used as indicator (limit of alkalmity, or of sacistiv!)

SODII HYDROXIDUM

Sodium Hydroxide

Page 395.

after line 33.

**msert "It contains not more than 2.5 per cent of Na,CO, ".

line 38.

delete "Soluble in 1 part of water",

 ${\it tnsert}$ 'Completely, or almost completely, soluble in I part of ${\it water}$ ".

Page 396, lines 1-7,

delete the test for "limit of carbonate".

after line 12,

insert "05 gramme, dissolved in water with the addition of 18 milhitres of nitra ecid, complies with the limit test for chlorides 1 gramme, dissolved in water with the addition of 35 millibrates of hydrochloric acid, complies with the limit test for sulphates".

delete lines 15-19.

insert "Assay. Dissolve about 2 grammes, accurately weighed, in 25 millilitres of water, add 5 millilitres of solution of barrum chloride, and titrate with N/1 hydrochloric acid, using solution of phenolphthalein as indicator

To the solution in the flash add solution of bromonhenol blue. and continue the titration with N/1 hydrochloric acid Each mills litre of N/I hydrochloric acid used in the second titration is equiva

lent to 0 0530 gramme of Na, CO,

Each millilitre of N/1 hydrochloric acid used in the combined titrations is equivalent to 0-0400 gramme of total alkali, calculated as NaOH.".

SODII PHOSPHAS

Sodium Phosphate

Page 398,

after line 35.

insert "Dissolve 2 grammes in 20 millilitres of water, add 5 millilitres of acetic acid and 3 millilitres of solution of calcium chloride, and set aside for one hour, no turbidity is produced (absence of fluorides) " *

SODII THIOSIILPHAS

[Sod. Thiosulph]

Sodium Thiosulphate

Mal Wt 2182 Na,S,O,5H,O

Sodium Thiosulphate may be prepared by the action of sulphur on sodium sulphite. It contains not less than 99 per cent, and not more than the equivalent of 101 per cent , of Na.S.O.5H.O.

Characters. Colourless, transparent, monoclinic, prismatic crystals, odourless, taste, saline Efflorescent in warm dry air, slightly deliquescent in moist air

Soluble in 0 5 part of water at 25°, insoluble in alcohol (95 per cent)

Tests for Identity Yields the reactions characteristic of sodium, and of thiosulphates.

Tests for Purity. A 10 per cent, w/v solution in scaler is neutral, or faintly alkaline, to litraus.

To 5 milhitres of a 5 per cent w/v aqueous solution add 5 milhitres of solution of ammonium oxidate, and set aside for five minutes, no turbidity is produced (limit of calcium)
Assence limit, 2 parts per million. Lead limit, 5 parts per

Assence limit, 2 parts per million Lead limit, 5 parts per million

Assay Dissolve about 1 gramme accurately weighed in 20

millihtres of water, and titrate with Λ/10 notine. Each millihtre of Λ/10 notine is equivalent to 0 02482 gramme of λa₂S₂O₂, 5H₂O

Storage Sodium Thiosulphate should be kept in a well closed container

Sterilisation of a Solution A solution of Sodium Thiosulphate for injection is sterilised by heating in an autodate or by Tundalisation, or by filtration.

DOSES

Metric Imperial

By subcutaneous, intramuscular or intravenous injection.

0.3 to 1 gramme.

5 to 15 grains.

SULPHARSPHENAMINA

Sulpharsphenamine

Page 414, line 24,

delete "5",

Page 415.

after line 9,

ansert "The solution is used immediately after preparation"

THEOPHYLLINA

[Theophyll.]

Theophylline

C,H₂O₂N₄ H₂O . Mol Wt 1981

Theophylline, 1 3 dimethylxanthine, is an alkaloid, obtained from the dried leaves of Camellia sinensis (Linn)

O Kuntze, or it may be prepared synthetically Characters. A white, crystalline powder, odourless, taste,

hitter

Soluble in 120 parts of water at 25°, more soluble in hot water, soluble in 80 parts of alcohol (95 per cent) at 25°, spar

ingly soluble in ether
Tests for Identity Dissolve 0.01 gramme in 1 millilitre of

lydrochloric acid add 0.1 gramme of potassium chlorate, and evaporate to dryness in a porcelsin dish a reddish residue remains, which becomes purple when exposed to the vapour of dilute solution of ammonia

A cold saturated aqueous solution gives with solution of lannic acid a white precipitate which is soluble in excess of the reagent

Tests for Purity Melting point 209° to 272°

A saturated aqueous solution is neutral to litmus

0.2 gramme dissolved in 5 millibres of solution of polassium hydroxide or in 5 millibres of dilute solution of ammonia, gives a clear solution (limit of caffeine, theobromine, and paraxan thine)

Dissolve 0.1 gramme in 2 millilitres of sulphure and the solution is colourless and dissolve 0.1 gramme in 2 millilitres of nitre and the solution is colourless (limit of readily car bonisable substances).

0.2 gramme loses, when dried at 100° not more than 0.019 gramme and leaves, on incineration not more than 0.000.2 gramme of residue

Preparation Injection of Mersalil

THYROIDEUM

Thyroid

Page 433, lines 26-28,

delete " and not more morganic iodine than 10 per cent of the content of total iodine ".

Page 434,

delete lines 8-42,

stitserf "Assay Boil I gramme with 10 milluitres of Macolum hydroxide under a reliux conden.er for four hours and 30 milluitres of vater and, after cooling to about 40°, 11 milluitres, or a sufficient quantity, of Malabure and until the mixture is slightly and 10 Compored paper. Set aside for eighteen to twenty four hours, and filter through a filter paper, 45° millimetre in diameter, which has been accurately fitted to a funche, the being finally drained by means of a nuction pump. Transfer the filter paper with the contents to a nuclei cruticle, about 18 milli-

metres in diameter, sprinkle a little anhydrous sodium carbonate on the surface of the precipitate, and dry at 110° Crumple up the filter paper, embed it completely in anhydrous sodium carbonate in the crucible, and complete the Assay as directed under "Thyroxin sodium", commencing with the words 'invert the crucible,' and using for the final titration N/200 sodium throughplate in place of N/200 sodium throughplate Each millithit of N/200 sodium throsulphate is equivalent to 0 1008 milligram of soline in combination as thryrous."

THYROXINSODIUM

Thyroxine-sodium

Page 435, delete lines 23-41, and

Page 436,

delete lines 1 and 2; insert "Assay Mix in a nickel crucible, approximately 18

millimetres in diameter, about 000 gramme, accurately weighed, with about I gramme of anhydrous sodium carbonate, fill the crucible completely with anhydrous sodium carbonate, well pressed down, invert the crucible and contents into a nickel crucible, 25 mills metres in diameter, and add sufficient unhydrous sodium carbonate to seal the junction of the two crucibles. Heat for fifteen minutes over a Runsen flame in such a manner that the outer crucible is at a uniform dull red heat allow to cool break up the contents of the crucibles, place in a 250 millilitre beaker, add 100 millilitres of water, and boil gently for ten minutes Filter, and wash the residue with a little water, boil the residue a second time with 100 millilitres of water for twenty minutes, again filter, and wash the residue with a little grater Transfer the mixed filtrates and washings to a I litre flash cool, and add sufficient water to produce about 500 millilitres Add 3 drops of solution of methyl orange, and sufficient sulphure acid (50 per cent t/v) to neutralise the solution Then add 1 milhitre of sulphune acid (50 per cent 1/t), 0.2 millibitre of bromine and a small piece of marble (about 0.05 gramme), and boil briskly for ten minutes Cool to about 20°, add 0.2 milhlitre of a 25 per cent w/v solution of phenol in glacial acetic acid, and allow to stand for at least two minutes Add 5 millilitres of solution of polassium sodide, and titrate with A /20 sodium thiorulphate, using at the end of the titration mucilage of starch as indicator Each millilitre of h /20 sodium thiosulphate is equivalent to 1 008 milligrams of L".

TINCTURA DIGITALIS Tincture of Digitalis

Page 443, line 29, delete "01", insert "008".

Page 444, line 10,

delete " 100 " ,

after line 14,

insert " or alternatively -

Powdered Digitalis—A quantity containing 1000 Units of activity, equivalent to 80 grammes of the international standard digitalis powder

Alcohol (70 per cent) . 1000 millilitres

Macerate in a closed vessel for two days, shaking occasionally, strain, press the mare lightly, mix the liquids obtained. Clarify by subsidence, or by filtration.".

TINCTURA IPECACUANHÆ Tincture of Ipecacuanha

Page 415, after line 32, insert "Dilute Acctic Acid . 165 millilitres".

line 37, after "Alcohol (90 per cent)", insert "and the Dilute Acetic Acid".

A and the Diffic Actic Acta

TINCTURA STRAMONII Tincture of Stramonium

Page 451, delete lines 1-8;

ınsert

"Liquid Extract of Stramonium 100 millilitres Alcohol (45 per cent), sufficient

to produce 1000 millilitres
Mix; set aside for not less than twelve hours; filter."

TOXINUM DIPHTHERICUM DETOXICATUM

Diphtheria Prophylactic

Page 461,

after line 15.

insert "(f) Alum Precipitated Toxond, a suspension of white, slightly yellow or yellowish brown particles in a colourless liquid, prepared by treating the filtrate with formaldehyde, adding Alum in the proportion necessary to produce a suitable precipitate, separating the precipitate, and washing and suspending it in Physiological Solution of Sodium Chloride".

Page 461,

delete lines 34-44, and

Page 462,

delete lines 1-6;

theref "Test II A quantity not exceeding fire times the volume indicated as the adult dose injected under the skin on one occasion, or one tenth of the volume indicated as the adult dose injected under the skin on two occasions, which are separated by an interval of not more than four weeks, into each of not less that ten normal guines pigs, gives them a degree of immunity indicated by the result of the following method of examination —

One test dose of Schick Test Tourn is metered into the skin of each of the guinea pigs, if ten guinea pigs are used in the test, a "positive Schick raction" must not occur in more than two of the animals, if more than ten guinea pigs are used in the test, a positive Schick raction" must not occur in more than one four the positive Schick raction. "must not occur in more than one fourth

of the animals tested

For Diphtheria Toxin Antitoxin Floccules and Diphtheria

Toxod Antitoum Flocules the test for potency as an immunance native may be carried out by the following alternative method—A quantity not exceeding five times the volume indicated as the adult does injected under the slam on one occasion, or one-time of the volume indicated as the adult does injected under the slam on two occasions, which are separated by an interval of not more than four weeks, into each of not fees than nime normal guinea rigg gives them a degree of immunity indicated by the results of the following method of examination—

One test dose of Schick Test Toxin and two test doses of Schick Test Toxin respectively are injected simultaneously at different places in the skin of each of the guines pigs, a positive reaction to one Schick Test Dose must not occur in more than one-third of the animals tested or, alternatively, a positive reaction to two Schick. Test Doses must not occur in more than two-thirds of the animals tested

This examination is made not later than six weeks after the single injection and not later than three weeks after the second of the two injections ".

TRYPARSAMIDUM

[Tryparsamid]

Tryparsamide

NaO(OH) AsO C.H. NH CH. CONH. HH.O

Mol Wt 3050

Tryparsamide is sodium N phenylglycineamide p aronate, and may be prepared by boiling an aqueous solution of sodium p-aminophenylarsonate with chloracetamide, converting the resulting N phenylglycineamide p arsonic need into its sodium salt, and crystallising from dilute alcohol. It contains not less than 25 I per cent, and not more thin 25 I per cent, of As in organic combination, and not less than 9 25 per cent, and not more than 9 5 per ce

Characters A colourless, crystalline powder, odourless
Freely soluble in water, insoluble, or only slightly soluble.

in a roads (25 per cent), in other, in obloryform, and in bearer. Tests for learnity. To the solution obtained in the Assay add divide sulphure and and a slight excess of sulphur disords. I roll until the solute of sulphur disords is removed, and pass in hydrogen sulphule, a yellow precupitive, which is soluble in arbitron of ammonium, carbonate, in produce.

Dissolve 0.5 gramme in 5 millilitres of water, add 3 millilitres of solution of solution hydroxide, and boil, ammonia is evolved To 1 millilitre of a 10 per cent w/v agreems solution add 1 millilitre of solution of calcium chloride, a precipitate of micro

scope wedge shaped prisms is gradually produced.
To 1 millitre of a 10 per cent w/v aqueous solution add
1 millitre of solution of silver mirrate, a precipitate of thin

microscopic needles is produced
Tests for Purity. An aqueous solution is neutral to litmus

To 1 millihite of a 10 per cent w/v squeous solution add

I millilitre of solution of magnesium ammonio-sulphate, no precipitate is produced in the cold (absence of arsenate, and

of phosphate)

To 05 gramme un a test tube (A), add 1 milhitre of solution of arsantia and To 0.25 gramme in a test tube (B), add 2 milhitres of solution of arsantia and To each tube add 4 milhitres of solution of arsantia and To each tube add 4 milhitres of a light per and 1.5 per cent w/r aqueous solution of solution matrix. Cool the tubes below δ_i and to each add 5 milhitres of shirts have followed in the below of the solution of solution of β no pathol, the colour in tube A is not deeper than that in tube B (limit of arsantia each)

To 1 millilitre of a 10 per cent w/v aqueous solution add 0 2 millilitre of test-solution of ferric chloride, a brown pro cipitate soluble in excess of test-solution of ferric chloride is formed, but no blue colouration is produced classence of are

phenamine compounds)

Dissolve 3 grammes in 10 millilitres of water, the solution is free from suspended matter, and remains clear for six hours.

Loses, when dried at 110°, not less than 2 5 per cent, and not

more than 35 per cent, of its weight Assay For graenic Transfer about 0.2 gramme accurately weighed to a 600-millilitre conical flask and moisten with 7.5 millilitres of sulphuric acid, add 15 millilitres of fuming miric acid, and heat at about the boiling point for forty five minutes Remove the flask from the source of heat, add 0 5 millilitre of fuming nitric acid, and heat until brown fumes cease to be evolved Allow to cool slightly, and add in several portions 5 grammes of ammonium sulphate, and again heat gently, shaking occasionally until the evolution of gas has ceased The resulting liquid should be colourless Cool, and add sufficient water to produce 100 milhitres Add I gramme of polassium sodide, boil gently until the volume is reduced to about 40 milli litres, cool decolourise with A / 10 sodium thiosulphate and dilute with about 150 millilitres of water Make the solution faintly alkaline to litmus with solution of sodium hydroxide, and then faintly acid with dilute sulphuric geid, add 20 millihtres of a cold saturated solution of sodium bicarbonate, and titrate with N/10 sodine, using mucilage of starch as indicator Each milhitre of N/10 sodine is equivalent to 0 003747 gramme of As

For introgen Dissolve about 03 gramme accurately weighed, in 30 millihites of nutrogen free sulphure coed, and 10 grammes of potageness sulphate and a small globule of necessary, and heat until a clear colouriess inquid is obtained, cool, dilute with sorier, transfer to an ammons distillation apparatus, add an excess of a 40 per cent w/v solution of sodium hydroxide in worder and I millihite of solutions of sodium hydroxide in worder and I millihite of solutions of solutions sulphufac, and

distil the liberated ammonia into 25 milblitres of N/10 sulphune acid. titrate the excess of acid with N/10 sodium hydroxide, using solution of methyl red as indicator Each millilitre of N/10 sulphuric acid is equivalent to 0-0014 gramme of N Storage Tryparsamide should be kept in a small well closed

container, protected from light, and stored in a cool place Sterilisation of a Solution Tryparsamide is prepared in sterile solution for injection by dissolving it in the requisite amount of Sterulised Water

DOSES

Metric Imperia!

By subcutaneous, inframuscular or intravenous injection, 15 to 30 grains

Notz.-In Canada Tryparsamide will be controlled by patents until the 2nd November, 1938

UNGUENTUM SIMPLEX

Simple Ointment

Page 476, line 12.

before "When Simple Ointment '.

1 to 2 grammes

snserf "Unless otherwise directed in the text,",

UNGUENTUM SULPHURIS

Ointment of Sulphur

Page 476, line 20,

after "Simple Ointment". insert", prepared with White Soft Paraffin".

VALERIANA

Valerian

Page 481, hne 9, delete "10"; ansert " 19".

ZINCI SULPHAS Zinc Sulphate

Page 484, line 36, after "bottle".

7.2

ensert ", add 5 millilitres of water, and shake well".

l.ne 37,

after 'titrate". insert "immediately".

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XXI WEIGHTS AND MEASURES OF THE BRITISH PRARMA-

APPENDICES

APPENDIX I

MATERIALS AND SOLUTIONS EMPLOYED IN TESTS

Page 494.

delete line 15;

insert "Arachis Oil. of the British Pharmacopena.

Arsandic Acid: para arsandic acid. NH. C.H. AsO(OH)...

of Reagent purity

Arsanile Acid, Solution of: dissolvo 0 005 gramme of arsanile acid in 20 millilitres of water by the addition of a few drops of solution of sodium hydroxide, and add a sufficient quantity of water to produce 100 millilitres".

Pago 495, after line 9,

ensert "Calcium Acid Phosphate: CaHPO, 2H2O, of Reagent purity".

after line 18,

snsert "Calcium Lactate: of the British Pharma-copœia".

Page 498, after line 4,

snsert "Cottonseed Oil: of the British Pharmacopoxia".

where "Cyclohexane: C,H_{II}, a clear colourless hquid, pecific gravity (15 5°,15 5°), about 0 78; boiling point, 81° to 82°; freezing point, 4 5° to 0 5°, almost completely transparent to radiation of greater wave length than 250mµ, and exhibits no trace of discontinuous absorption."

after line 11.

insert "2: 6-Dichlorophenolindophenol: HO C.H. N: C.H.Cl. O. of Reagent purity.

2:6-Dichlorophenolindophenol, Solution of: warm

76 0 I gramme of 2 6-dichlorophenolindophenol with 100 milh

litres of water, and filter Solution of 2 6 D chloropheno! adophenol must not be used later than three days after preparat on

Digitonin of Reagent purity ".

delete lines 14-19.

ensert " Dimethylaminobenzaldehyde, Solution of dis solve 0 125 gramme of dimethylaminobenzaldehyde in a cooled mixture of 65 millilitres of sulphurse and 35 millilitres of uater, and add 0 1 millilitre of test solution of ferric chloride

Solut on of Dimethylaminobenzaldehyda must not be used later than seven days after preparat on

after line 20

insert "3 5-Dinitrobenzoyl chloride: CaH.(NO.), COCl of Reagent purity

Diphenvibenzidine C.H. NH C.H. C.H. NH C.H. of Reagent purity

after line 22,

ansert "Eosin the di sodium salt of tetrabromofluor escem C., H. Br. O. Na. of Reagent purity

Eosin, Solution of 8 0 5 per cent w/v solution of cosin in water'

Page 499 after line 21,

insert "Formic Acid of Reagent purity, containing about 90 per cent w/w of HCOOH

Fuller's Earth of commerce complying with the follow ing test -Suspend I gramme in 80 mill litres of water and add 15 millibres of a 1 per cent w/v solution of guinne bisulplate Set aside for half an hour, shaking occasionally and filter To 50 millilitres of the file-ate add 0.5 millilitre of solution of polassio mercuric todide, any turbidity produced is not greater than the turbidity produced by diluting 0.5 milhitre of a 0.1 per cent w/v solution of quinine bisulphate with water to 50 millilitres and adding 0.5 millilitre of solution of potassio mercurio sodide

after line 23

ensert " Haematoxylin of Reagent purity

Haematoxylin and Alum, Solution of max 10 millilitres of a 10 per cent w/v solution of haematoxulin in dehydrated alcohol with 200 milhitres of a 10 per cent w/v solution of alum in water, and add 3 millilitres of a 6.25 per cent w/v solution of potassium permanganate in water, boil for one minute, stirring constantly, and cool quickly

Hae-natoxylin and Ferric Ammonium Sulphate, Solition of pour, slowly and with stirring, 150 millithrees of 6 6 per cent w/s solution of ferric ammonium sulphate in water into 5 millithrees of a per cent w/s solution of hade an toxylin in warm water boil for half a minute and allow to cool, filter before use."

Page 501, after line 2.

ansert "Iron Citrate of commerce, scales"

after line 18,
insert "Magenta, Acid of Reagent purity",

Page 502, after line 6

insert "Marble of Reagent puri 3 ".

Page 503, after hao 6,

insert "\(\theta\)-Naphthol, Solution of dissolve 5 grammes of \(\theta\) paththol freshly recrystallised in 40 millihres of solution of soli in hydroxide, and add sufficient water to produce 100 millihres

Solution of \$ \aphthol must be freshly prepared *

Page 501 after him 10.

insert "Phenylhydrazine C,H, NH NH, of Reagent purity

after line 19

*macrt "Picrolonic Acid 1 (4 nitrophenyl) 3 methyl 4 nitropyrazolone(5) CisH₅O₄N₄ of Reagent purity

Page 507, after line 9,

insert "Potassium Phosphate Dipotassium hydrogen phosphate $K_1 HPO_4$ of Reagent purity

after line 17

ensert "Pyridine C.H.N, of Reagent purity ", after line 22.

ensert "Quinine Bisulphate of the British Pharma

after line 25, snserf "Rice Starch: of the British Pharmacoponia."

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Page 503, after line 23,

ensert " Sodium Casemate Soluble casem of commerce. extracted with alcohol (90 per cent) and ether ".

78

Page 509, after line 4. unsert " Sodium Iodide of the British Pharmacopona "

Page 510 after line 33,

ensert "Sulphandic Acid C.H.NH.SO.H. of Reagent purity

Sulphur Dioxide SO, of commerce'

after last line.

snsert "Sulphuric Acid (50 per cent. v/v) Vix equal volumes of sulphuric acid and water, and cool".

Page 511, hpe 6,

after "96 per cent w/w of H.SO.",

insert " and complying with the following test -Mix 45 millilitres with 5 millilitres of water, cool, and add 8 milligrams of diphenylbenzidine, the solution is colourless or not more than very pale blue

Vitrogen free Sulphune Acid should be stored in small containers Supplies which may have absorbed water or mitric acid from the air should be rejected

Page 512 before line 1.

ensert "Trinstrophenol and Acid Magenta, Solution of mix 5 milhitres of a 2 per cent w/v solution of acid magenta m water with 100 milhlitres of a saturated solution of tringro phenol in water, and add immediately before use 0.5 millilitre of a 1 per cent solution of glacial acetic acid in water '

APPENDIX II

A. SOLUTIONS EMPLOYED IN VOLUMETRIC DETERMINATIONS

Page 513 before line 1,

insert "Solution of Barium Hydroxide, N/10 Barrum hydroxide, dissolved in freshly boiled and cooled water to contain in 1000 millilitres 15 775 grammes of Ba(OH), 8H,O "

B INDICATORS EMPLOYED IN VOLUMETRIC DETERMINATIONS AND IN \$\(\text{pl}\) DETERMINATIONS

Page 519, line 4,

delete "alcohol (20 per cent)";
insert "alcohol (50 per cent)".

APPENDIX IV

A DETERMINATION OF FREEZING POINT, OF MELTING POINT, AND OF SOLIDIFYING POINT

VI Solidifying point of the Fatty Acids in Soaps Page 530, line 35.

delete 30".

D DETERMINATION OF OPTICAL ROTATION

Page 538, last line,

after "solution",

unsert "at 20" The specific rotation, unless otherwise stated, is calculated from observations made with sodium light. For certain substances the observations are made with the light from a mercury vapour lamp, using the green line of wave length 546 1 millimeron (ma)

F DETERMINATION OF VISCOSITY

Page 539,

delete lines 11-39,

meet. The dynamic viscousty (n) of a liquid in units of the centimetric gramme second system is the tangential force in dynes per square centimetre exerted on each of two parallel planes, placed I centimetre apart in the liquid, when one of the planes is moving in its own plane with a velocity of I centimetre per second relatively to the other. The unit of dynamic viscousty on the centimetre gramme second system, the poses, as the dynamic viscousty of a liquid in which the force between the two planes is I dyne per square centimetre. The centiposes wone blundershift of a poses

The kinematic viscosity (v) of a liquid is the quotient of the liquid. The unit of kinematic viscosity by the density of the liquid. The unit of kinematic viscosity on the cent metre gramme second system, the stokes, is the kinematic viscosity of a liquid which has a dyname viscosity of I poiso and a density of 1 gramme per cubic centimetre 1. The centistokes is one hundredth of a stokes.

Viscosity is determined by means of a glass viscometer of the type shown in the figure and constructed in accordance with the dimensions shown in the table. The specification of the apparatus and method of procedure is in agreement with the British Standard Specification No. 188 1929.

Page 540,

before line 1.

meert "TABLE I

DIMENSIONS OF VISCOMETERS SUITABLE FOR LIQUID PARAFEIN

Range = 30 to 2,0 centistokes Length of Tube (aB) = 7 cm Length of Capillary (de) = 10 cm

All linear dimensions are given in continuetres
All volumes are given in millilities

| Capillary (de) internal | | ł | | | ļ | ļ |
|---------------------------|------|---------|------|------|------|----------|
| diameter . | 0 24 | 020 | 0 92 | 0 20 | 0 19 | 0 18 |
| Tube (aB) internal | 1 | | | | | |
| diameter | 07 | 07 | 07 | 07 | 07 | 07 |
| (internal diam | 1 | | |) | 1 | 1 |
| Bulb (BC) eter | 28 | 26 | 24 | 23 | 21 | 19 |
| capacity | 20 € | 162 | 13 2 | 104 | 82 | 64 |
| Bulb (Cd) capacity | 12 | 12 | 12 | 0.6 | 06 | 06 |
| Bent tube (ef) minimum | i I | | İ | | | l |
| internal diameter | 07 | 07 | 0.7 | 07 | 07 | 07 |
| Tube (Gh) internal diam | | i | | | | l |
| eter . | 07 | 07 | 07 | 07 | 07 | 07 |
| (minimum in | | | | | | Į. |
| ternal diam | ا ا | ا ۔ ۔ ا | | | l i | |
| Bulb (fG) eter | 28 | 26 | 24 | 22 | 21 | 20 |
| minimum | | 18.0 | 150 | | | |
| capacity | 21 5 | | 53 | 115 | 90 | 75 49 |
| Dimension z | 57 | 5.5 | 53 | 91 | 50 | 49 |
| Distance between vertical | 21 | 20 | 18 | 16 | 1.5 | 14 |
| axes | 21 | 20 | 10 | 10 | 13 | 1.4 |
| Vertical distance of M | 0 12 | 0 12 | 0 12 | 0 15 | 0.15 | 0 15 |
| above G | 0 12 | 0 12 | 0 12 | 0.13 | 010 | 0 10 |

In actual determinations densities expressed in grainines per mill litre may be employed since the difference between the cube centimetre and the millitire is too small to affect the results agmificantly.

TABLE II

DIMENSIONS OF VISCOMETERS SUITABLE FOR A 3 PER CENT SOLUTION OF PYROXYLIN IN ACETONE".

Page 540, line 1,

delete 1 9 to 15 poises"

snsert 200 to 1500 centistokes '

delete lines 29-42.

statest METHOD OF PROCEDURE—The viscometer is reliefuled to the marks M and G with the liquid to be tested and placed vertically in a bath maintained at the specified term perature. The liquid is sucked or blown up to a point exceeding the centimetre above B, and the time taken for the meniscus to fold from mark B to mark C is measured.

The constant (K) of the instrument is determined in centistokes per second by observations on a liquid of known

kinematic viscosity

The kinematic viscosity is calculated from the equation

 $v = I_k t$ where v = k inematic viscosity in centistokes

there v = kinematic viscosity in centistokes
t = time in seconds for the meniscus to fall from
Rin C

The dynamic viscosity is calculated from the equation $\eta = rp$

where $\eta = \text{dynamic viscosity}$ in poises $\rho = \text{weight in grammes of 1 millil tro of the liquid at}$

the temperature of the test '.

Page 540 after last line,

ensert

"G DETERMINATION OF ULTRA VIOLET ABSORPTION

The ultra volet absorption is the logarithm of the ratio of the intensities of the incident and emergent beams of ultra violat radiation of a specified wave length when allowed to pass through is type, I centimetre in thickness of a I per cent w/s solution of the substance in a specified solvent. The ratio of the intensities is measured in a spectrophotometer by a photographic or other suitable method."

APPENDIX V

QUALITATIVE REACTIONS AND TESTS FOR SUBSTANCES MENTIONED IN THE PHARMACOPPELA

Page 549, after line 12,

insert "Thiosulphates

Solutions of thiosulphates give with hydrochloric acid a white precipitate of sulphur, which soon turns yellow, and evolve sulphur choxide, a colouriess gas with a pungent smell of burning sulphur

Strong solutions of thiosulphates give with solution of barrism chloride a white precipitate, which is soluble in hydrochloric acid with separation of sulphur

Solutions of thiosulphates decolourise colution of sodine, the decolourised solution does not give the reaction for sulphates

Solutions of thiosulphates decolourise solution of bromine, the decolourised solution gives the reaction for sulphates"

APPENDIX VI

QUANTITATIVE TEST FOR LEAD

Table, page 554,

ge 554,

Page 553, snsert "Sodu Thiosulphas | 12 | - |2 | - |5 | 5

.

APPENDIX VII

QUANTITATIVE TEST FOR ARSENIO

Page 566, after last line.

ensert "Bismuthi et Sodii Tartras

Lamit 2 parts per million

Treat 5 grammes as described under 'Bismuthi Sali

Bismuthi Oxychloridum.

Limit 2 parts per million.

Treat 5 grammes as described under Bismuthi Car-

Page 567, after line 26,

ensert "Calcu Gluconas, Limit 5 parts per million Treat 2 grammes as described under 'Calcu Lactas'.".

Pago 568, after line 23,

insert "Ferri Subchloridum Citratum.

Limit 10 parts per million

Treat 1 gramme as described under 'Fern Carbonas Saccharatus'".

Page 570, after line 32, **nsert "Mersalylum. Limit 10 parts per million.

Mix I gramme with I gramme of codecum hydroxide As T and I milhitre of coder, dry and again gently, descoive the residue in 14 milhitres of bromanated hydroxidors code As T and 45 milhitres of trade and remove the excess

Page 573, after line 11,

At T"

ensert " Sodn Thiosulphas Limits 2 parts per million.

Boil 5 grammes with 5 grammes of poissaum chlores As T and 35 millihites of vater until dworked, add 18 millihites of hydrechlore coul As T, and continue boiling gently, until the reaction is complete and most of the chlorine is evolved cool, add 15 millities of vester and a few dropes of stonous chloride solution As T.".

of bromine by a few drops of solution of stannous chloride

APPENDIX XI

A. DETERMINATION OF ESTERS IN VOLATILE OILS

Pago 580, after line 20,

insert " 0 1311 gramme of Santalyl Acctate ".

D. DETERMINATION OF CARVONE IN OIL OF CARAWAY, AND IN OIL OF DILL

Page 583, line 17,

delete "about thirty-five ";

APPENDIX XIV

Pages 596 and 597,

delete this appendix;

insert

APPENDIX XIV

COLOUR GLASSES FOR THE SULPHURIC ACID TEST ON LIQUID PARAFFIN

The colour glasses are standardised to have the following properties on the system of colour measurement adopted at the National Physical Laboratory, Teddington.

Red glass

Colour Quality 0 377 X + 0 33 Y + 0 292 Z Photometric Transmission 66 6 per cent

Yellow glass

Colour Quality 0 412 \(\lambda + 0 451 \(\lambda + 0 137 \(\lambda \)

Photometric Transmission 84 3 per cent

Combination of the Red glass and the Yellow glass
Colour Quality 0 447 X + 0 423 Y + 0 130 Z
Photometric Transmission 55 2 per cent

In the foregoing specifications X, Y and Z devote the reference stimule of the system of colour specification adopt by the International Commission on Illumination, in 1931, and the measurements, both of colour quality and photometric transmission, are presumed to be made with source B, adopted by that Commission for colonnettre measurements adopted by that Commission for colonnettre measurements.

APPENDIX XV

A BIOLOGICAL ASSAY OF ANTIRACHITIC VITAMIN (VITAMIN D)

Page 599, lines 4 and 5,

delete "A suitable dose of the Standard Preparation is about 0 25 Unit",

insert' Suitable doses of the Standard Preparation may vary from 0.25 to 1 Unit".

```
delete " receives " :
    insert " may receive ".
  after line 8.
    ensert "Alternatively, the whole of the ten days' dose
may be given as one dose at the beginning of the test period ".
  line 34.
```

delete "difference";

ensert " ratio". lmo 36.

Page 509, line 6,

delete "difference". insert " relation ".

lines 38 and 39.

delete " A difference of 50 per cent , or more, in potency can be detected by this test '.

unsert "Limits of Error -When the method of X ray examination is used, in an experiment in which 10 rats are used in each group and the litters are evenly divided between the groups, the limits of error (P = 0 99) are 63 and 159 per cent

When the method of examination of the bones after staining is used, and there is a severe initial degree of rickets, the limits of error (P = 0 99) are 49 and 215 per cent.".

Page 600, lines 4 and 5,

delete " A mutable dose of the Standard Preparation is about 0 1 Unit " .

ensert "Sustable doses of the Standard Preparation may vary from 0 025 to 0 1 Unit ".

line 9. after "bones".

insert " . e g femora or humeri.". line 11.

after " are ", insert " dried,".

line 16.

before "bone". insert "dry extracted".

after line 31. suscrt "Limits of Error:-In an experiment in which 10 rats receive the Standard Preparation and 10 rats receive the preparation being tested, and the litters are evenly divided between the two groups, the limits of error $\{P=0.99\}$ are 59 and 170 per cent ".

D BIOLOGICAL ASSAY OF GAS GANGRENE ANTITOXIN (PERFRINGENS)

```
Page 607, line 25,
after "Gas gangrene Antitoxin",
insert "(perfringens)".
```

I BIOLOGICAL ASSAY OF POWDERED DIGITALIS Page 620, line 28.

```
delete " 0 1 ",
insert " 0 08 "
```

insert "8".

n

ASSAY OF VITAMIN A

The activity of a preparation of vitamin A is determined by comparing its activity by a suitable biological method with that of the Standard Preparation of Vitamin A, or with that of a subsidiary laboratory standard the activity of which is known in terms of the Standard Preparation

An expression of the content of vitamin A in a preparation may be obtained by multiplying the ultra violet absorption by a factor

r Standard Preparation of Vitamin A.

The Standard Preparation for Great Britain and Northern reland is a quantity of pure fearotene kept in the National Institute for Vedical Research, Hampstead, London The Standard Preparation for other parts of the British Empire is the same, except for those countries in which a similar standard preparation, kept in a different institute, has been defined by law, in these countries the standard preparation, so defined, is used.

2 The Unit of Vitamin A.

Callium againsts

The Unit of Vitamin A activity for Great Britain and Northern Ireland is the same as the international unit. It is defined as the specific activity contained in 0.0 merogram (0.6y) of the Standard Preparation of pure 6 caretone The Unit for other parts of the British Empire is the same, except for those countries in which a similar unit has been defined by law, in these countries the unit, so defined, is

3 Suggested Details of Biological Method

(a) Increase in weight in rate which have ecosed to grow on a det deficient in vitamin A. Four or five litters, containing in all about 30 newly weared rate, each weighing from 30 to 40 grammes, are used for the test. They are given a det containing all essentials for growth except vitamin A, until their reserves of that factor are exhausted and they cease to grow. This takes place in four to five weeks, if the stock from which he rats are drawn has been fed on a diet containing only a moderate amount of vitamin A. The diet used for this test may consist of —

| Rice starch (preferably partially | | | to per cent |
|-----------------------------------|----------------|---------|-------------|
| dextrinised) | (presentation) | parmany | 73 per cent |
| Dried brewer's | cast | | 8 per cent |
| Salt mixture | | | 4 per cent |

The following is a suitable salt mixture for use in preparing this diet —

| Sodium chloride . | | 23 4 | parts |
|------------------------|--|------|-------|
| Magnesium sulphate | | 216 | ٠., |
| Sodium phosphate | | 358 | ** |
| Potassium phosphate | | 69 6 | ** |
| Calcium acid phosphate | | €8 8 | ** |
| Calcium lactate | | 154 | ,, |
| Imn estrate | | 60 | |
| Potassium sodide | | 02 | ** |

In addition each rat receives about 10 Units of Vitamin D per week, given in one dose as one or more drops of a suitable

15 per cent

solution directly into the mouth. The diet may include also 15 per cent of a vitamin A free fat in place of 15 per cent of starch, if this addition is made the vitamin D may be added

to the fat Fresh tap water is supplied daily Each rat is weighed twice weekly When three successive half weekly weighings have shown that its weight has not increased by more than 2 grammes, it is allocated to one of four or five groups The groups are arranged so as to include equal numbers from each litter and equal numbers of males and females Two of the groups are used for testing two doses of the Standard Preparation (I Unit and 3 Units are suitable doses) and the other two or three groups for testing two or three doses of the cod liver oil being tested (0 5 10 and 20 milligrams are suitable doses! Thus the rats of different groups receive different doses, but all the rats of any one group receive equal doses. The doses may be given daily, or only twice a week in equivalent amount, suitable solutions being made so that the required dose can be adminis tered as one or more drops directly into the mouth of the rat which is held firmly in the palm of the operator's hand with its mouth open to receive the drop. The rate are weighed once a week for three weeks or for longer if desired but the degree of accuracy obtainable in a test lasting for four weeks is only slightly greater than that obtained in a test lasting for three weeks At the end of this time, the average increases in weight of the rats in the different groups are determined Comparisons are drawn between the groups receiving doses of the cod liver oil being tested and those receiving doses of the Standard Preparation, and the activity of the cod liver oil being tested is calculated in terms of the Standard Preparation The range of doses proposed for the Standard Preparation and for the cod liver oil being tested will be suitable for samples of cod liver oil whose potencies range from about 500 Units per gramme (when the doses 20 milligrams of cod liver oil and 1 Unit of the Standard Preparation give equal results) to about 6000 Units per gramme (when the doses 0.5 milligram of cod liver oil and 3 Units of the Standard Preparation give equal results)

Only two groups of 10 rats each need be used if the relation between average increase in weight and dose of vitamin A given has been previously determined. Every rat in one group may then receive 2 milligrams of the cod liver oil being

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tested, and every rat in the other group may receive 2 Units

testod, and every fat in the other group may receive 2 Units of the Standard Preparation II these groups give equal average increases in weight, the potency of the oil is 1000 Units per grammo II the two groups do not give equal increases in weight, the potencies of the doses are not directly proportional to the mean increases in weight, but to the amounts of vitamin A, which has been determined previously by the special experiment as corresponding to the two mean increases in weight.

Limits of Error —In an experiment in which 10 rats (5 males and 5 females) recen o the Standard Preparation and 10 rats (5 males and 5 females) recen to the preparation being tested, and in which the mean responses are equal the limits of error (P = 09) are 30 and 339 per cent for a three weeks test, and 37 and 272 per cent for a five weeks test.

(b) Prophylactic The method described above can be carried out as a prophylactic test by giving doses of the pro paration being tested and of the Standard Preparation to groups of rats suitably arranged from the beginning of the experiment instead of giving them only after the animals have become steady in weight Certain modifications of the test are necessary —(1) in every test observations must be made on a control group of rats which receive neither the cod liver oil being tested nor the Standard Preparation , (2) the test must be carried on until this control group has died, and the other groups of rats, receiving different doses of the cod liver oil being tested or of the Standard Preparation. show differences in average increases in weight . comparisons can then be drawn between these different groups. (3) a previous determination of the relation between increases in weight and doses of vitamin A cannot be used in order to reduce the number of groups of rats used Doses suitable for a prophylicite test are about one tenth of the doses suit-

able for a curative test

Limits of Error —The data at present available do not
permit of the calculation of the error of this test. Individual
workers should estimate the error from their own data.

4 Suggested Details of Spectrophotometric Method.

A solution of the unsaponifiable matter of the cod liver oil in dehydrated alcohol or cycloheans is prepared by the method described below, and the ultra rolet absorption at 328mµ is determined by means of a suitable spectrophotometer, the result being calculated with reference to the original oil. An expression of the content of vitamin A in the cod liver oil in Units per gramme is obtained by multiplying the ultra-violet absorption by the factor declared by the Permanent Com mission on Biological Standardisation of the Health Organisa tion of the League of Nations as the factor to be used for this purpose 1

Preparation of the solution of the unsaponifiable matter

Boil 1 gramme of the cod liver oil with 10 milhitres of freshly prepared N/2 alcoholic solution of potassium hydroxide for five minutes, or until the solution is clear Add 20 mills litres of water, transfer to a small separator and extract with two successive quantities of 25 millilitres of anasthetic ether Wash the mixed ethereal solutions by gentle rotation, without violent shaking successively with 10 to 20 millilities of water, with 10 to 20 millilitres of N/2 potassium hydroxide and with trater Again wash the ethereal solution by shaking thor oughle with two successive quantities of 10 milhitres of water. filter into a flask, remove the ether, and dissolve the residue in a sufficient quantity of dehydrated alcohol or euclohexane to produce a solution of the concentration required for the instrument to be used. A preliminary test on the untreated oil will indicate the quantities of oil and of solvent, which will be necessary

A statement of the vitamin A content which has been derived in this way should be accompanied by a statement indicating the method of assay employed

The spectrophotometric method, as described, measures the amount of a substance having a certain physical property characteristic of vitamin A. When supplied to the deter mination of vitamin A in a specimen of cod liver oil, which conforms in all other respects to the Pharmacopæial requirements it gives a trustworthy measurement, but it may be in applicable in the presence of other substances showing absorp tion in the region of 328mu. In the event of a discrepancy, due to this or any other cause between the Units of vitamin A in a preparation of vitamin A as determined by the biological method and by the spectrophotometric method, the value as determined by the biological method shall be accepted

actual physical measurement of the intensity of absorption The factor accented at present (December 1926) is 1600

Limits of Error -The limits of error (P = 0 99) for the

91 at 328mm depend on the level of absorption and the number of replicate tests made

The following table gives the values obtained under different conditions -

Internate of

| absorption E I per cent | S ngle tosts per cent | Tests in duplicate per cent | Tests in quadrupheate per cent | |
|----------------------------|-----------------------------|-----------------------------------|--------------------------------------|--|
| 0 33 | 80 and 120 | 86 and 114 | 90 and 110 | |
| 0 67 | 90 and 110 | 93 and 107 | 95 and 105 | |
| 1 33 | 95 and 105 | 96 5 and 103 5 | 97 5 and 102 5 | |
| No informat the factor | ion is available | for the calculation | n of the error of | |

BIOLOGICAL ASSAY OF ANTINEURITIO VITAMIN (VITAMIN B.)

The activity of a preparation of antineuritic vitamin (vitamin B1) is determined by comparing its antineuritie activity with that of the Standard Preparation of Antineuritie Vitamin (Vitamin B1) by a suitable method

1. Standard Preparation of Antineuritic Vitamin (Vitamin B.)

The Standard Preparation for Great Britain and Northern Ireland is kept in the National Institute for Medical Research. Hampstead, London. The Standard Preparation for other parts of the British Empire is the same, except for those countries in which a similar standard preparation kept in a different institute has been defined by law, in these countries the standard preparation, so defined, is used

2 The Unit of Antineuritic Activity (Vitamin B.).

The Unit of Antineuritie Activity (Vitamin B.) for Great Britain and Northern Ireland is the same as the international unit and is defined as the specific antineuritie activity con tained in 10 milligrams of the Standard Preparation Unit for other parts of the British Empire is the same, except for those countries in which a similar unit has been defined by law . in these countries the unit, so defined, is used.

3 Suggested Details of Method

Increase in weight of rate which have ceased to grow while receiving a diet deficient in estamin B.

About 10 young rats each weighing from 40 to 50 grammes. immediately after wearing, are fed upon a diet, which contains 92 all essentials for growth except vitamin B. A basal diet

suitable for this test may consist of -Sodium cassinate 100 grammes Pics starch 300 grammes

Arachus oil or cottonseed oil "5 grammes Salt musture (see Assay of Vitamin 1

page 87) 25 grammes Water 500 grammes

The well mixed diet should be thoroughly cooked by steaming for about three hours Each rat receives daily 3 to 5 drops (0.06 to 0.1 gramme) of cod liver oil from a dropping p p tto to provide vitamins A and D Vitamin B, may be provided by administration of I millilitre of an autoclayed extract of veast made as follows ---

Mix fresh pressed brewer's yeast with sufficient water to produce the consistency of cream transfer to a filter remove the liquid as completely as possible by suction and complete the removal of bound by means of a hand press Repeat this process with several successive quantities of water until the expressed liquid is of a pale straw colour Determine the proport on of dry solids in the res due by drying a small quantity at 100° Mix the quantity of residue which corresponds to 100 grammes of dry solids, with from 1000 to 1500 millilities of a boiling 0.02 per cent w/s solution of alac al acetic acid in water. boil for five minutes stirring constantly and filter while hot Evaporate the filtrate on a water bath to 200 millilitres and heat in an autoclave at 100° for five hours m order to destroy vitamin B,

The rats are placed in separate cages with wire grids of mesh not smaller than 1/2 meh in order to hinder access to faces The young rats thus fed show an increase in weight for two or three weeks which then ceases. When the weight has been stationary for not less than five days or has begun to decline the rats are divided into two croups. Each rat of one group receives daily for four weeks 10 milligrams of the substance being tested and each rat of the other group receives daily for the same period 10 mill grams (1 Unit) of the Standard Preparation. The doses are readily taken, if moustened with water and given on a small dish. The average increase in weight of the rats is determined for each group

If the average increase in weight is approximately the same for both groups, the vitamin B, activity of the substance being tested is equal to that of the Standard Preparation If the increase in weight in the group receiving the substance being tested is less or greater than that in the group receiving the Stardard Preparation, the test is repeated using a larger or smaller dose of the substance being tested a simultaneous experiment being made with the Standard Preparation Alternatively, for the first trust two doses of the substance being tested may be given, and fourteen rats may be used in each trul there should be at least 2 rats receiving no dose, these should show a gradual decline in weight ending usually in convulsions, caused by vitamin B, deficiency

The rats used in any one trial should be drawn from two or three litters, those receiving the different doses being evenly

distributed over these litters

The activity of the preparation being tested is calculated from the dose, which gives a result equal to that given by 1 Unit of the Standard Preparation

Limits of Error —In an experiment in which δ rats receive the Standard Preparation and δ rats receive the preparation being tested, and in which the mean responses are equal, the limits of error (P = 0.99) are 65 and 154 per cent

Q BIOLOGICAL ASSAY OF ANTISCORBUTIO VITAMIN (VITAMIN C)

The activity of a preparation containing antiscorbutic vitamin (vitamin C) is determined by comparing its antiscorbutic activity with that of the Standard Preparation of Antiscorbutic Vitamin (Vitamin C) by a suitable method

1. Standard Preparation of Antiscorbutic Vitamin (Vitamin C)

The Standard Preparation for Great Britain and Northern Ireland is a quantity of I accorbe and kept in the National Institute for Medical Research, Hampetead, London The Standard Preparation for other parts of the British Empire is the same, except for those countries in which a similar standard preparation, kept in a different institute has been defined by law; in these countries the standard preparation, to defined, a used

2 The Unit of Antiscorbutic Activity (Vitamin C)

The Unit of Antiscorbutic Activity (Vitamin C) for Great Britain and Northern Ireland is the same as the international unit It is defined as the specific antiscorbutic activity con tained in 0.05 milligram of the Standard Preparation The Unit for other parts of the British Empire is the same, except for those countries in which a similar unit has been defined by law, in these countries the unit, so defined, is used.

3 Suggested Details of Method.

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(a) Changes in the histological structure of the feeth

When guines pigs are fed on diets deficient in vitamin C. changes are produced in the structure of their teeth. These changes are related to the degree of the deficiency and occur before other symptoms, such as tender gums and beemorthages

at the knee-joints Guinea pigs, each weighing from 250 to 300 grammes, receive a basal diet free from vitamin C for fourteen days A suitable diet consists of -

Bran . 45 per cent Split oats 25 per cent Dried skimmed milk 30 per cent.

In addition each guinea pig receives about 10 drops of a good sample of cod liver oil twice a week and an unrestricted

supply of fresh tap water For the experiment two groups, each of 10 guines-pigs are used. Those in one group receive daily doses of the Standard Preparation, those in the other group receive daily doses of the preparation being tested, for fourteen days A useful

daily dose of the Standard Preparation is 1 milligram (20 Units) An amount of the preparation being tested which is expected to contain the equivalent of I milligram is given as a daily dose

The guinea pigs are killed, and the lower jaw bones are removed and decalcified. Sections are cut of the root of the meisor at the region of the bend of the law bone. They are stained with solution of haematarylin and alum followed by solution of easin, or with solution of haematoxylin and ferric ammonium sulphate, followed by solution of transfrontenol and acid materia. The extent of disorganisation of the structure is estimated by comparing the appearances with those shown in a graded series of sections derived from guinea pigs, which have received different doses of the Standard Preparation with the same basal diet. The average degree of protection from sourcy of each group of guinea pigs is determined. The degree of protection may be represented by the figures 0 to 4, a moderate degree of protection being represented by the figure 2.5 If the average degree of protection of the group receiving the dose of the preparation being tested, is equal to that of the other group, simultaneously receiving the same dose of the Standard Preparation the activity of the prepara tion is equal to that of the Standard Preparation If the average degrees of protection of the two groups are not equal, and more exact information as to the activity of the pre paration being tested is required, the test is repeated, using for one group of animals the same dose of the Standard Preparation and for the other group a dose of the preparation being tested, which, judging from the first test, is likely to produce a degree of protection equal to that produced by the dose of the Standard Preparation

Lumits of Error —In an experiment in which the average effect (degree of protection from scurvy) is estimated for 10 guinea pigs, the following statements can be made —

(1) There is no conclusive evidence of the presence of

vitamin C unless the effect is greater than 1 6
(2) Two preparations can be shown to differ significantly

in their activity only when their effects differ by more than 1 unit

(3) When the effect of each preparation is 2.5, the limits of

error (P = 0.99) are 36 and 164 per cent

When the effect of each preparation is 3.0, the limits of

When the effect of each preparation is 30, the limits of error (P = 099) are 51 and 149 per cent

(b) Growth, and development of macroscopic lesions of scurry
Young guines pigs, each weighing from 250 to 300 grammes,
receive unrestricted quantities of a basal dut free from vitamin

| • | A sustable diet consists of — | | | | |
|---|-------------------------------|---------------------|--|--|--|
| | Wheat bran | . 6 parts by volume | | | |
| | Barley meal . | . 2 ,, ,, ,, | | | |
| | Wheat muldlings | 2 | | | |

Fish meal .

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The whole is mostened with water Each animal receives daily in addition 40 to 60 millithres of mil. made up from a dired powder and autoclast of for fifteen muntes at 120° On this diet, without addition of vitemin C in any form guines pigs of the weight stipulated and derived from a good stock, which has received cabbage regularly, develop scurvy and die in four to fire weeks

In the experiment the doses are chosen with the aim of finding one dose of the preparation being tested which produces a response equal to that given by a dose of the Standard Preparation. The average growth response to these doses should be subnormal, and the protection from secury should be only partial. Daily doses of 0.5 milligram of the Standard Preparation approximately conform to this requirement. Groups of 5 guines pigs, each receiving one of these amounts of the Standard Preparation should be included in every comparison. Corresponding doses of the preparation being tested are given. A group of 5 animals is used for each dose of the preparation being tested are given.

In every group the daily dose is continued from the start of the experiment for not less than forty two land preferably for sixty) days the animals being weighed twice a week throughout The doses should be expeditiously consumed. At the end of the chosen period all the guinea pigs are killed, and the signs of scurvy (hamorrhages and fractures) are assessed If the average growth and degree of protection from scurvy of the groups receiving the doses of the preparation being tested is equal or nearly equal to that of the other groups receiving the same doses of the Standard Pre paration the activity of the preparation being tested is equal to that of the Standard Preparation If the average degrees of protection of the respective groups are not equal or nearly equal and more exact information as to the activity of the preparation being tested is required, the test is rereated, using fresh groups of rumes pies for the same dose of the Standard Preparation and other groups for doses of the preparation being tested, which judging from the first test are likely to produce a degree of protection equal to that produced by the doses of Standard Preparation

Limits of Error —In an experiment in which 10 guinea pigs receive the Standard Preparation and 10 guinea pigs receive the preparation being tested in a six weeks' test and in which the dosage of each is just sufficient to maintain the mean weight constant, the limits of error (P=0.99) are 82 and 139 per cent. If the mean response is larger the error is also larger.

R BIOLOGICAL ASSAY OF ANTIPNEUMOCOCCUS SERUM (TYPE I)

CAUTION—In any part of the British Empire in which Antipneumococcus Serum (Type I) is controlled by law, care must be taken that the proissons of such law are duly complied with (See British Pharmacopana, 1932, page 12)

The potency of a sample of antipneumocoreus scrum (type I) is determined by companing the doese of it, necessary to protect mee against the lethal effect of Diplococcus pineu monize (type I), with the doese of a standard preparation of antipneumococcus scrum (type I), necessary to give the same protection. For this comparison there are necessary, (a) the Standard Preparation of Antipneumococcus Serum (Type I), and (b) a suspension of living, highly virulent Diplococcus pneumonize (tipe I).

Standard Preparation of Antipneumococcus Serum (Type I).

The Standard Preparation for Great Britain and Northern Ireland is that defined in the Regulations made under the Therapeute Substances Act, 1925. The Standard Preparation is a quantity of dired anti-pneumoscoesis serum (type I) kept in the National Institutio for Medical Research, Hampstead, London The Standard Preparation for other parts of the British Empire is the same, except for those countries in which a similar standard preparation, kept in a different institute, has been defined by law, in these countries the standard preparation, see defined in the standard preparation.

2. The Unit of Antipneumococcus Serum (Type I).

The Unit for Great Britain and Northern Ireland is that defined in the Regulations made under the Therapeutic Substances Act, 1925. The Unit is the specific neutralising activity for suitable cultures of Diplocecus preumonia (type I), contained in such an amount of the Standard Preparation as the Medical Research Council may from time to time indicate as the quantity exactly equivalent to the unit.

accepted for international use. The Unit for other parts of the British Empire is the same, except for those countries in which a similar unit has been defined by law, in these coun tries the unit, so defined, is used

3 Suggested Details of Method

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A THE STRAIN OF DIPLOCOCCUS PLEUMOLIE (TYPE I)
USED IN THE TEST

The strain used in the test possesses the morphological, biological and cultural characteristics of Diplococcus pneu monus (type I)

It is highly virulent for mice. The virulence is maintained by passage through mice at intervals of fourteen days to one month. For this purpose 0.5 millihitre of a suitable dilution of a young actively growing broth culture is impeted intraperationally into mice. Cultures from the heart blood of these mice are inoculated into nutrient broth containing sterile blood. The strain is maintained in this inclume at 0° to 4°.

B PREPARATION OF THE CULTURE OF DIPLOCOCCUS PLEUMONIE (TIFE I) FOR USE IN THE TEST

The culture of Diplococcus pneumonic (type I) for use in the test is prepared by adding I millithre or less of the strain, maintained as described in the preceding paragraph, to approximately 10 millithres of nutrient broth to which 05 millithre of sterile blood or serum may be added, the test culture is uncubated at 37 for eighteen hours

- C DETERMINATION OF THE POTENCY OF A SAMPLE OF ANTIPNEUMOCOCCUS SERUM (TYPE I)
- (a) By the method of untraperatoneal anjection unto make of mixtures of the scrum being tested and the test dose of the culture

The virulence of the strain is satisfactory, if not less than 2 out of 3 mice, injected intraperitonically with 1×10^{-8} millilitre of the test culture, die within forty eight hours

In this method I volume of the test culture is added to 49 volumes of nutrient broth, 05 millilitre of the dilution, so obtained, contains the test does of Diplococcus pneumoniz (type I) for use in the tests

The potency of a sample of antipneumococcus serum (type I) is determined by injecting into groups of mice mixtures of graduated quantities of it and the test dose of the culture, and comparing the mortality rates with those produced by miecting, at the same time, into other groups of mice mixtures of known quantities of the Standard Preparation and the test dose of the culture Graduated quantities of the serum being tested and of the Standard Preparation are chosen, the differ ences being such that mixtures, containing the larger quan tities of scrum being tested and of the Standard Preparation, may be expected to protect all, or nearly all, the mice injected, and that the smaller quantities of the serum being tested and of the Standard Preparation may be expected to protect few or none of the mice injected

(1) Preliminary Test Mixtures are made so that each millilitre of each mixture contains graduated quantities of the scrum being tested together with the test dose of the culture . and mixtures are similarly made containing in each millilitre graduated quantities of the Standard Preparation together with the test dose of the culture. The total volume of each mixture is adjusted by dilution with physiological solution of sodium chloride The mixtures are allowed to stand at room temperature for ten minutes

One millilitre of each mixture is injected intraperitoneally into each of a group of 5 mice The mice used are drawn from a uniform stock, and are preferably not less than 15 grammes, and not more than 20 grammes, in weight. The mice are thereafter observed for seven days. The relative protection conferred by the doses of the serum being tested, when com pared with that given by the doses of the Standard Preparation, provides an approximate estimate of the potency of the sample

of serum being tested

(2) Final Test Mixtures are made, containing in each millilitre graduated quantities of the serum being tested, and of the Standard Preparation, with the test dose of the culture A number of mixtures containing the serum being tested, and a number of mixtures containing the Standard Preparation. are prepared, the quantities of the serum being tested and of the Standard Preparation being such as may be expected, from the results of the preliminary test, to confer on the mice in the various groups injected a high and a low degree of protection, as estimated by the mortality rates in each group The total volume of each mixture is adjusted by dilution with physical longal solution of sodium chloride. The mixtures are allowed to stand at room temperature for ten minutes.

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A dose of I millitre of each mixture is injected into each of a group of mice, not less than 100 mice in all being used for the serum being tested, and 100 mice in all for the Standard Preparation under the same conditions as these described for the preliminary test. After seven days observation the mortality rate for each group of mice is calculated

The potency of the serum being tested is determined by comparison of the mortality rates in the groups of more which received doses of it, with the mortality rates in the groups of mice, which received the doses of the Standard Preparation

of mice, which received the doses of the Standard Preparation
Limits of Error —If 100 mice receive the Standard Pre
paration and 100 mice receive the preparation being tested
the limits of error (P = 0.99) are 57 and 176 per cent

(b) By the method of intravenous injection into mice of the serum being tested, followed by the intraperitoneal injection of the test dose of the culture.

In this method the test does, appropriate for use in the determination of the potency of a sample of antipueum consisserum (type I), is determined for each batch of medium which its reserved for the preparation of the test culture. In virulence of the test culture is such that a quantity not greater than 1 × 10²⁵ millibitre, when uspected interperioncally in a volume of I millibitre, causes the death of not less than 5 of a croup of 10 mice.

One Unit of the Standard Preparation contained in 0.5 milliblire, is injected into a tail vein of each of 20 mice. One hour later each of a group of 10 of the mice is injected intra perstoneally with a dose of 0 001 multilitre of the test culture, contained in 0.5 millilitre and each of the remaining 10 mice is injected intraperitoneally with a dose of 0 0005 millilitre of the culture, contained in 0.5 millilitre At the same time 0.5 Unit of the Standard Preparation is injected into a tail vein of each of a group of 20 mice. One hour later each of a group of 10 of the mice is injected introperitoneally with a dose of 0 001 mulhitre of the test culture contained in 0.5 millilitre and each of the remaining 10 mice is injected intra pentoneally with a dose of 0 0005 millilitre of the culture. contained in 0 a millilitre The mice are observed for ninety six hours The appropriate test dose is estimated by noting the group of mice which gives a mortality rate most nearly approximating to 50 per cent , the test dose, when the mortality rate is 50 per cent, contains 500 000-1,000 000

viable diplococci. The test does of the culture in these tests is prepared by making the requisite dilutions in nutrient broth. The mice used are drawn from a uniform stock and are preferably not less than 18 grammes, and not more than 22 grammes, in weight.

- (1) Preliminary Test Graduated quantities of the scrum being tested are given in a volume of 0.5 millilitre to groups of mice, each consisting of 10 animals the injection is made into a tail vein. At the same time a quantity of the Standard Preparation which is equivalent to 1 Unit, contained in a volume of 0.5 millilitre, is given to each of a group of 10 mice by injecting the dose into a tail vein. In the same way a quantity of the Standard Preparation which is equivalent to 0.5 Unit, contained in a volume of 0.5 milhlitre is injected into each of a group of 10 mice. One hour later the test dose of the culture, contained in a volume of 0.5 milhitre. is injected intraperitoneally into each mouse of all the groups The animals are observed for ninety six hours The relative protection conferred by the doses of the serum being tested. as judged by the mortality rate in each group, when compared with that which is given by the doses of the Standard Preparation provides an approximate estimate of the potency of the sample of serum being tested
- (2) Final Test Three dilutions of the serum being tested are prepared in physiological solution of solution chloride in accordance with the results of the preliminary test, so that each does se contained in a volume of 0.5 millithre. Dilutions of the Standard Preparation, which contain 1 Unit and 0.5 Unit in 0.5 millithre, are also prepared in physiological solution of solution chloride. A volume of 0.5 millithre of each other in the contained in a vision of 0.5 millithre of each other in the standard prince. One hour later the test does of the culture, contained in a volume of 0.5 millithre, is injected intraperriencelly into each mouse of all of the groups. The animals are observed for innetty six hours. The relative protection confirmed by the doses of the serum being tested, as judged by the mortality rate in each group, when compared with that which is given by the doses of the Standard Preparation, provides an estimate of the potency of the sample of serum being tested.

Limits of Error —If 20 mice are used in each of the five groups, the limits of error (P = 0 99) are 51 and 197 per cent

S BIOLOGICAL ASSAY OF ANTIPNEUMOCOCCUS SERUM (TYPE II)

CAUTION -In any part of the British Empire until the Ants pneumococcus Serum (T.pe II) is controlled by law, care must be taken that the provisions of such law are duly complied with (See British Pharmacopana, 1932, page 12)

The biological assay of Antipneumococcus Serum (Type II) resembles that of Antipneumococcus Serum (Type I) with the modification that a suitable strain of Diplococcus pneumonise (type II) is used in the test

T BIOLOGICAL ASSAY OF GAS GANGRENE ANTI TOXIN (@DEMATIE\S)

CAUTION -In any part of the British Empire in which Gas gangrene Antitoxin (ademations) is controlled by law, care must be taken that the provisions of such law are duly complied with (See British Pharmacopana, 1932, page 12)

The potency of a sample of gas gangrene antitoxin (cede matiens) is determined by comparing the dose of it, necessary to protect mice or other suitable animals against the toxic effects of gas gangrene toxin (cedematiens), with the dose of a standard preparation of gas gangrene antitoxin (redemations) necessary to give the same protection. For this comparison there are necessary, (a) the Standard Preparation of Gas gangrene Antitoxin (ordemations), and (b) a suitable prepara tion of gas gangrene toxin (ordematiens) for use as a test toxin The potency of this test toxin is first determined in relation to the Standard Preparation by a satisfactory method The potency of samples of gas gangrene antitoxin (ædematiens) to be tested is then determined in relation to the potency of the test toxin by the same method

1 Standard Preparation of Gas gangrene Antitoxin (ædematiens)

The Standard Preparation for Great Britain and Northern Ireland is that defined in the Regulations made under the Therapeutic Substances Act, 1925 The Standard Preparation is a quantity of dried gas gangrene antitoxin (ordemations) kept in the National Institute for Medical Research, Hampstead, London The Standard Preparation for other parts of the British Empire is the same, except for those countries in which a similar standard preparation, kept in a different institute has been defined by law, in these countries the standard preparation, so defined, is used

2 The Unit of Gas-gangrene Antitoxin (cedematiens)

The Unit for Great Britain and Northern Ireland is that defined in the Regulations made under the Therapeutic Substances Act, 1925. The Unit is the specific neutralising activity for gas gangrene (redemanters) toxin, contained in such an amount of the Standard Preparation as the Medical Research Council may from time to time indicate as the quantity excetty equivalent to the unit accepted for international use. The Unit for other parts of the British Empire is the same, except for those countries in which a similar unit has been defined by law, in these countries the unit, so defined, is used.

3 Suggested Details of Method

A PREPARATION OF TEST TOXIN

Gas gangreno toxin (ordematiens) is prepared from a sterilo diffurio of Clotriduium ardematiens the filtrato being prepared after about five days growth of the organism by precipitation with ammonium sulp fet, the resulting precipitate is collected, dired in vacuo over phosphorus pentoxide, powdered, and kent dri

B SELECTION OF TEST TOXIN

A suitable toxin is one which is lethal for mice, when in jected intramuscularly in a dose of 0.02 milligram, or less, and which has a test dose, as defined below, of 0.5 milligram, or less.

C DETERMINATION OF THE TEST DOSE

A quantity of the dried toxin is accurately weighed, and dissolved in physiological solution of sodium chloride, so that each millilitre contains a precise amount, such as 10 milligrams

The Standard Preparation is issued as a solution in a mix ture of 1 volume of physiological solution of sodium chlorida and 2 volumes of glycern, the solution centians 20 Units in 1 millitre This solution of the Standard Preparation is diluted with 99 volumes of physiological solution of sodium chlorids, so that each millitre contains 0 2 Unit

(a) By intramuscular injection into mice. Mixtures are

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mixture

made so that 0.2 millibitre of each muture contains 0.1 mills intre of the dilution of the Standard Preparation (0.02 Unit) and a varying quantity of the solution of the toam. The total volume of each muture is adjusted by dilution with physiological solution of solum chlorals.

ph justicipated activation of section chlorate. The mixtures are allowed to stand at room temperature for sixty minutes and are then injected into mice. The mice used are drawn from a uniform stock, and are prefer ably not less than 17 grammes and not more than 20 grammes in weight. A does of 0.2 millibites of each mixture is injected attramuscularly into each of 6 mice. The mice are thereafter observed, for seventy two hours.

If all the mice are killed the amount of toxin present in

If none of the muce is killed the amount of toxin present in 02 millitrie of the mixture is less than the test dose. Fresh mixtures are made containing in each 0.2 millitrie of each mixture 0.1 mill litre of the didut on of the Standard Prepara ton (0.02 Unit) and amounts of the solution of the toxin intermediate between the smallest amount which killed all the mice and the largest amount which lailed is lidl any of the mice. The mixtures are allowed to stand at room temperature for sixty minutes. A dose of 0.2 mill tre of each mixture is injected intransucularly into each of 8 mice. The mice are thereafter observed for seventy two hours. The determination is repeated and the results of the separate tests which have been made with mixtures of the same composition are added together so that a series of totals is obtained each total persecuting the mortality due to one

The test dose of town is the amount present in 0.2 millilitre of that mixture which causes the death of about one half of the total number of mice injected with it

(b) By introcutaneous synction into gained-page. The mix tures of toxin and the d lattion of the Standard Preparation, for the determinat on of the test dose of the toxin by intracutaneous impection into guines p gs are prepared in a main included with that described for the determination of the test dose by the intramuscular injection into more

The mutures are slowed to stand at room temperature for suty minutes and are then injected intracutaneously mito the shaven or dep lated flanks of white or light coloured guinespigs each we gluing from 300 to 400 grammes A dose of 0.2 millilitre of each mixture is injected at suitably spaced intervals into the skin of the guinea pig. The guineapigs are thereafter observed for seven days

The test does of the toxin is the amount present in 0.2 millilities of that mixture which causes at the site of injection a small, characteristic, edematous, and eventually necrotic, lesion in the skin of the guinea pig Mixtures containing larger amounts of toxin cause a greater amount of edema and necrosis, and mixtures containing smaller amounts of toxin causes no reaction.

- D. DETERMINATION OF THE POTUNCY OF A SAMPLE OF ANTITOXIN
- (a) By intramuscular injection into mice
- (1) Preliminary Test A quantity of the test toxin is accurately weighed, and dissolved in physiological solution of sodium chloride, so that 0.1 millilitre contains the test dose

Mixtures are made so that 0.2 millilitre of each mixture occutans 0.1 millilitre of the solution of the toxin and different quantities of the antitoxin being tested. The toxid volume of each mixture is adjusted by dilution with physiological desired of sodium chloride. The mixtures are allowed to stand at room temperature for airly innuites. A does of 0.2 millilitre of each mixture is injected into each of 3 mice under the conditions described in the determination of the test does of 6.0 mixture on the mixture on the mixture or the standard or the mixture
(2) Final Test Fresh mixtures are made, containing in each 0.2 millitire the test dose of torin and amounts of the antitoxin being tested intermediate between the smallest amountof antitoxin which protects all the mice, and the largest amount of antitoxin which fails to protect any of the mice, as determined in the preluminary test

A further maxture is made with the dilution of the Standard Preparation such that 0.2 millitre contains 0.1 millitre of the solution of the toxin and 0.02 Unit of Antitoxin

The mixtures are allowed to stand at room temperature for exactly sixty minutes A dose of 0 2 millistre of each mixture is imjected into each of 6 mice under the conditions described

in the determination of the test does.

The mixture of the antitoxin being tested, which contains 0.02 Unit in 0.2 milhitre, is that mixture which, killing some but not all 0 fit mines, kills the same, or most nearly the same, number as the mixture, containing 0.02 Unit of Antitoxin in 0.2 milhitre.

Lamits of Error —The limits of error (P = 0 99) are 95 and 105 per cent

(b) By intracutaneous injection into guinea pigs

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A quantity of the test toxin is accurately weighed, and dissolved in physiological solution of sodium chloride, so that 0.1 millilitre contains the test dose

Mixtures are made so that 0.2 millihre of each mixture contains 0.1 millihre of the solution of the toxin and different volumes of the antitoxin being tested

A further mixture is made with the dilution of the Standard Preparation such that each 0.2 millibrae contains 0.1 millibrae of the solution of toxin and 0.02 Unit of Antitoxin

The mixtures are allowed to stand at room temperature for sixty minutes. A dose of 0.2 milhitro of each mixture is injected into each of 2 guinea pigs under the conditions described in the determination of the test dose of toxin.

The mixture of antitoxin being tested, which contains 0.02 Unit in 0.2 millibitry, is that mixture which produces the same degree of local reaction as that produced by the injection of the mixture, which contains in 0.2 millibitre the test dose of toxin and 0.02 Unit of Antiboxin

Limits of Error —The data at present available do not permit of a sufficiently accurate determination of the limits of error, but the limits are not greatly wider than the limits of error for the test by intramuscular injection into mice

U BIOLOGICAL ASSAY OF GAS GANGRENE ANTI TOXIN (VIBRION SEPTIQUE)

CAUTION—In any part of the British Empire in which Gas gangene Antivarin (whron septique) is controlled by law, care must be taken that the procisions of such law are duly complied with (See British Pharmacopena, 1932, page 12)

The potency of a sample of gas gangrees antitorn (vibron septique) is determined by comparing the does of it, necessary to protect mose or other suitable animals against the toric effects of gas gangrees form (vibron septique), with the does of a standard preparation of gas gangrees antitorm (vibron with the does).

septique), necessary to give the same protection. For this comparison there are necessary, (a) the Standard Preparation of Cas gangrene Antitovin (vibrion septique), and (b) a suit able preparation of gas gangrene toxin (vibrion septique) for use as a test toxin. The potency of this test toxin is first determined in relation to the Standard Preparation by a satis factory method The potency of samples of gas gangrone antitoxin (vibrion septique) to be tested is then determined in relation to the potency of the test toxin by the same method

1, Standard Preparation of Gas gangrene Antitoxin (vibrion septique).

The Standard Preparation for Great Britain and Northern Ireland is that defined in the Regulations made under the Therapeutic Substances Act, 1925 The Standard Preparation is a quantity of dried gas gangrene antitoxin (vibrion septique) kept in the National Institute for Medical Research, Hamp stead, London The Standard Preparation for other parts of the British Empire is the same, except for those countries in which a similar standard preparation, kept in a different institute, has been defined by law, in these countries the standard preparation, so defined, is used

2 The Unit of Gas-gangrene Antitoxin (vibrion septique)

The Unit for Great Britain and Northern Ireland is that defined in the Regulations made under the Therapeutic Substances Act, 1925 The Unit is the specific neutralising activity for gas gangrene (vibrion septique) toxin, contained in such an amount of the Standard Preparation as the Medical Research Council may from time to time indicate as the quantity exactly equivalent to the unit accepted for inter national use The Unit for other parts of the British Empire is the same, except for those countries in which a similar unit has been defined by law, in these countries the unit, so defined, is used

3 Suggested Details of Method

A PREPARATION OF TEST TOXIN

Gas rangrene toxin (vibrion septique) is prepared from a sterile hitrate of the Clostridium, commonly known as Vibrion Septique, the filtrate being prepared after one to three days' growth of the organism, by precipitation with ammonium sulphate the resulting precipitate is collected, dried in vacuo

B SELECTION OF TEST TOWN

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A suitable toxin is one which is lethal for m ce when injected intravenously in a dose of 0.2 milligram or less and which has a test dose as defined below of 5.0 mill grams or less

C DETERMINATION OF THE TEST DOSE

A quantity of the direct toxin is accurately weighed and dissolved in physiological solution of sodium chloride so that each millilitre contains a precise amount such as 20 m ligrams

The Standard Preparation is issued as a solution in a mix ture of 1 volume of physiological solution of solume chloride and 2 volumes of glyceris the solution contains 100 Units in 1 milhitre This solution of the Standard Preparation is diluted with 19 volumes of physiological solution of solution chloride, as that such milhitre contains 5 Units

(a) By intravenous injection into mice

Mixtures are made so that 0.5 millilitre of each mixture contains 0.2 millilitre of the dilution of the Standard Faparation (I Unit) and a varying quant ty of the solution of the form. The total volume of each mixture is adjusted by dilution with networkerial solution of solume chloral

The mixtures are allowed to stand at room temperature for sixty minutes and are then unjected into mee. The mice used are drawn from a uniform stock, and are preferably not less than 17 grammes and not more than 20 grammes in weight. A does of 0.5 millilater of each mixture is impeted into a tail vein of each of 6 mice. The mice are thereafter observed for seventy two hours.

The test dose of foun is the amount present in 0.5 mills litro of that muture which causes the desth of some of the more but not of all of them provided that mutures contain mg larger amounts of town cause the death of all the muce injected and that mutures containing smaller amounts of toxic fall to muce injected and that mutures containing smaller amounts of toxin fail to kill any of the muce injected.

(b) By intraculaneous injection into guines pigs

Mixtures are made so that 0.2 millilitre of each mixture contains 0.1 millilitre of the dilution of the Standard Pre-

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paration (0.5 Unit) and a varying quantity of the solution of the toxin. The total volume of each mixture is adjusted by dilution with physiological solution of sodium chloride.

The mutures are allowed to stand at room temperature for sixty minutes, and are then injected intracutaneously into the shaven or deplated finals of white or light coloured guines pigs, each weighing from 300 to 400 grammes. A dose of 0 2 milliture of each muture is injected at suitably spaced intervals into the skin of the guines pig. The guinea pigs are threafter observed for forth eight hours.

The test does of the toxin is the amount present in 0.2 millithre of that mixture which causes at the site of injection a small characteristic, necrotic lesion in the skin of the gumea pig Mixtures containing larger amounts of toxin cause a greater amount of odema and necrosis and mixtures containing similar amounts of toxin cause no reaction

D DETERMINATION OF THE POTENCY OF A SAMPLE OF ANTITOXIN

- (a) By intravenous injection into mice
- (1) Preliminary Test A quantity of the test toxin is accurately weighed and dissolved in physiological solution of sodium chloride, so that 0.2 millilitre contains the test dose

Mixtures are made so that 0.5 millilities of each mixture contains 0.2 millilities of the solution of toxin and different quantities of the antitoxin being tested. The total volume of each mixture is adjusted by dilution with physiological solution of solume of border. The mixtures are allowed to stand at room temperature for aixty minutes. A dose of 0.5 millilities of each mixture is injected into each of 3 mice under the conditions described in the determination of the test dose of toxin. If none of the mice is killed, 0.5 millilities of the mixture contains more than 1 Unit of Antitoxin, similarly, if all the mice are killed, 0.5 millilities of the mixture contains less than 1 Unit of Antitoxin.

(2) Final Test Fresh mixtures are made, containing in each of a millister the test done of toxin and amounts of the entitoxin being tested intermediate between the smallest amount of antitoxin, protecting all the mice and the largest amount of antitoxin failing to protect any of the mice, as determined in the preliminary test.

A further mixture is made with the dilution of the Standard

Preparation such that 0.5 millilitre contains 0.2 millilitre of

the toxin solution and I Unit of Antitoxin The mixtures are allowed to stand at room temperature for sixty minutes A dose of 0.5 millilitre of each mixture is

injected into each of 6 mice under the conditions described

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in the determination of the test dose The mixture of the antitoxin being tested, which contains ! Unit in 0.5 millilitre, is that mixture which, killing some but not all of the mice, kills the same, or most nearly the same, number as the mixture, which contains I Unit of Anti-

toxin in 0.5 millilitre Limits of Error - The limits of error (P = 0 99) are 89 and

III per cent (b) Bu intraculaneous injection into aumea-pias

A quantity of the test toxin is accurately weighed, and dissolved in physiological solution of sodium chloride, so that 0 I mullilitre contains the test dose Mixtures are made so that 0.2 millilitre of each mixture

contains 0 I millilitre of the solution of the toxin and different quantities of the antitoxin being tested A further mixture is made with the dilution of the Standard

Preparation such that each 0 2 mullilitre contains 0 1 mullilitre of the solution of toxin and 0.5 Unit of Antitoxin The muctures are allowed to stand at room temperature for

sixty minutes. A dose of 02 millilitre of each mixture is injected into each of 2 guines-pies under the conditions described in the determination of the test dose of toxin The mixture of antitoxin being tested, which contains 0.5

Unit in 0 2 millibre, is that mixture which produces the same degree of local reaction as that produced by the injection of the mixture which contains in 0.2 millilitre the test dose of toxin and 0.5 Unit of Autitoxin

Limits of Error -The data at present available do not permit of a sufficiently accurate determination of the limits of error, but the limits are certainly not wider than the limits of error for the test by miras enous injection into muce.

V. BIOLOGICAL ASSAY OF STAPHYLOCOCCUS ANTITOXIN

CAUTION—In any part of the British Empire in which Staphylococcus Antitoxin is controlled by law, care must be taken that the provisions of such law are duly complied with (See British Pharmacopecia, 1932, page 12)

The potency of a sample of staphylococcus antitoxun is determined by comparing the dose of it, necessary to neutralise the specific haemolytic, dermo necrotic or lethal effects of staphylococcus toxin, with the dose of a standard preparation of staphylococcus antitoxun, necessary to give the same protection. For this comparison there are necessary, (a) the Standard Preparation of Staphylococcus toxin for use as a test toxin. The potency of this test toxin is first determined in relation to the Standard Preparation by a satisfactory method. The potency of samples of staphylococcus antitoxin to be tested is then determined in relation to the potency of samples of staphylococcus antitoxin to be test down by the same method.

1. Standard Preparation of Staphylococcus Antitoxin

The Standard Preparation for Great Britain and Northern Ireland is that defined under the Therapeutic Substances Act, 1925. The Standard Preparation is a quantity of dired staphy lococcus antitoxin kept in the National Institute for Medical Research, Hampstead, London The Standard Preparation for other parts of the British Empire is the same, except for those countries in which a sumilar standard preparation, kept in a different institute has been defined by law, in these countries the standard preparation is defined, is used.

2 The Unit of Staphylococcus Antitoxin

The Unit for Great Britain and Northern Ireland is that defined in the Regulations made under the Therspeute Statistics Act, 1925. The Unit is the specific neutralisation activity for stapply fooceau toxun, contained in such an amount of the Standard Preparation as the Michiel Research Council may from time to time indicate as the quantity exactly equivalent to the unit accepted for international use. The Unit for other parts of the British Empire is the same, except of those countries in which a similar unit has been defined by law, in these countries the unit, so defined, is used.

3 Suggested Details of Method

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A PREPARATION OF TEST TOXIS

Staphylococcus toxm is prepared by separating the fluid portion from the growth of a toxingenic strain of Staphylococcus on a fluid or semifluid medium, or by extraction of the organ issus or of the medium on which the organisms have been grown. It is sterlisted by filtration

B SELECTION OF TEST TOXIN

In selecting a toxin for use as a test toxin the following quantities of the sample are determined -

(i) the LH dose This is the smallest quantity of the toxin which, when mixed with I Unit of Antitoxin causes partial haemolysis of a rabb ts washed red blood corpusales which have been added as indicator

(a) the Lr/S dose This is the smallest quantity of toxin which when inixed with one-fifth of a Unit of Anni toxin and injected into the skin of a normal guinea pig or rabbit causes a small characterist c, necrotic lesion at the site of injection.

(ii) the L_i dose This is the smallest quantity of the toxin which when mixed with 1 Unit of Antitoxin and injected intrarconsity or intraperitorically into mice causes the death within three days of about one half of the mice injected.

A sutable torm is one which (a) causes the haemolysis of washed red blood corpuscles of the rabbit in doses of 0 005 mullilite, or less and which has a test dose (LH) of 0 3 milli litre or less, (b) produces a small, characteristic necroic lesson in guinea pigs when impeted intercataenously in doses of 0 01 millilitre or less and which has a test dose (Lr/5) of 0 1 millilitre, or less, (c) produces a small characterist, e, necroic lesson in rabbits when injected intracutaneously in doses of 0 002 millilitre, or less and which has a test dose (Lr/s) of 0 50 millilitre, or less (a) is lethal for more when injected intravenously or intrapentionally in doses of 0 0 millilitre or less and has a test dose (Lr/s) of 0 millilitre or less and has a test dose (Lr/s) of 10 millilitre or less and has a test dose (Lr/s) of 0 millilitre or less and has a test dose (Lr/s) of 0.

C. DETERMINATION OF THE TEST DOSE

The Standard Preparation is issued as a solution in a mixture of 1 volume of physiological solution of solution chloride and 2 volumes of glycenn, the solution contains 20 Units in 1 milliture

(a) By the haemolysis of washed red blood corpuscles of the

One volume of the solution of the Standard Preparation is diluted with 19 volumes of physiological solution of sodium chloride, or other appropriate saline solution, so that each

millilitre contains 1 Unit

Mixtures are made so that 2 millibitres of each mixture contains I millibitre of the dilution of the Standard Prepara tion (1 Unit) and a varying quantity of the solution of the town. The total volume of each mixture is adjusted by dilution with physiological solution of sedium chloride, or other appropriate saline solution.

The mixtures are allowed to stand at room temperature for thirty minutes, 0.5 millities of a 2 per cent suspension of washed red blood corpuscles of the rabbit is then added to 2 millitiers of each mixture and the mixtures are incubated at 37° for sixty minutes. The mixtures are thereafter placed at room temperature and ere examined after one hour, or

after a period not exceeding twenty four hours

The test dose (LH) of the toxin is the amount present in 2 millitres of that mixture which causes partial haemolysis of the red blood corouscles added as indicator

(b) By sufracutaneous unsection unto guinea pias

One volume of the solution of the Standard Preparation is diluted with 9 volumes of physiological solution of sodium el loride, or other appropriate saline solution, so that each millitize contains 2 Units

Mixtures are made so that 2 millistres of each mixture contains 1 millistre of the dilution of the Standard Prepara tion (2 Units) and a varying quantity of the solution of the town. The total volume of each mixture is adjusted by dilution with physiological solution of sedium chlorule, or other ampropriate saline solution.

The mettures are allowed to stand at room temperature for thirty numtes, and are then injected intracutaneously into the shaven or deplated flanks of not less than 2 whole or light coloured guines pige preferably weighing not less than 300 grammes A dose of 0.2 millibiter of each matture is injected at suitably spaced intervals into the skin of the guinea pig., not more than five injections are made into one flank. The guinea pigs are thereafter observed for two days

The test dose (Lr/5) of the toxin is the amount present in 0.2 millitire of that mixture which causes at the site of injection a small, characteristic, necrotic lesson in the skin of the guines pig Mixtures containing larger amounts of toxin cause a greater amount of necross and inflammation, and mixtures containing smaller amounts of toxin cause no necrosis

(c) By intraculaneous injection into rabbits.

The method is the same as that described in the preceding paragraph (C (b)) except that 0.2 millitare of each mixture is injected into the shaven or depilated skin of rabbits. The rabbits are thereafter observed for four days

The test dose (Lr/5) of the torm is the amount present in 0 2 milhitre of that mixture which causes at the site of m pecton a small, characteristic, necrotic lesion in the shin of the rabbit Mixtures containing larger quantities of toxin cause a greater amount of necross and inflammation and mixtures containing smaller amounts of toxin cause no necross.

Note—By employing larger or smaller quantities of the Standard Preparation in the mixtures, prepared for the methods based upon the intracutaneous tests in guinea pigs (paragraph C (b)) or rabbints (paragraph C (c)), the test does of the toxin determined against one half (Lr/2) or one tenth (Lr/10) of a Unit of Auttorium may be similarly determined

(d) By intravenous injection into mice

The Standard Preparation is used Mixtures are made so that 0.5 mill litre of each mixture contains 0.05 millilitre of the Standard Preparation (I Unit) and a varying quantity of the solution of the toxin. The total volume of each mixture is adjusted by dilution with physiological solution of codum chloride, or other appropriate saline solution.

The mixtures are allowed to stand at room temperature for

The maxtures are allowed to stand at room temperature for thirty minutes, and are then injected into mice. The mice used are drawn from a uniform stock and are preferably not less than 17 grammes, and not more than 22 grammes, in weight. For each maxture a group of 5 mice is selected, and 0.5 milhitire of the mixture is injected into a tail van of each mouse. The more are thereafter obsert off for three days The determination is repeated, and the results of the separate tests, which have been made with mixtures of the same composition, are added together so that a series of totals is obtained, each total representing the mortality due to one mixture

The test dose (L,) of the toxin is the amount present in 0.5 millilitre of that mixture which causes the death of about one half of the total number of nuce injected with it

(e) By intraperitoneal injection into mice

The method is the same as that described in the preceding paragraph (C (d)) except that the mice used for the deter mination are injected intraperitonially

DETERMINATION OF THE POTENCY OF A SAMPLE OF ANTITOXIN

(a) By the haemolysis of washed red blood corpuscles of the rabbit

The test toxin is diluted with physiological solution of sodium chloride, or other appropriate salme solution, so that I millilitre of the dilution contains the test dose

(LH) Mixtures are made so that 2 millilitres of each mixture contains 1 millilitre of the dilution of the toxin and different quantities of the antitoxin being tested. A further mixture is made with the dilution of the Standard Preparation so that 2 millilitres contains 1 millilitre of the dilution of toxin and 1 Unit of Antitoxin The total volume of each mixture is adjusted by dilution with physiological solution of sodium chloride, or other appropriate saline solution. The mixtures are allowed to stand at room temperature for thirty minutes , 0.5 millilitre of a 2 per cent suspension of washed red blood corpuscles of the rabbit is added to 2 millilities of each mix ture The mixtures are incubated at 37° for sixts minutes under the conditions described in the determination of the test dose (LH)

The mixture of the antitoxin being tested, which contains I Unit in 2 millilitres, is that mixture which shows the same. or most nearly the same, amount of partial hamolysis as is shown by the mixture which contains the test dose of toxin and I Unit of Antitoxin

Limits of Error -The limits of error (P = 0 99) are S9 5 and 1105 per cent

(b) By intraculaneous injection into guinea must

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The test toxin is diluted with physiological solution of sodium chloride, or other appropriate saline solution, so that I millihitre of the dilution contains ten times the test dose (Lr/5)

Vixtures are made so that 2 millistres of each mixture contains 1 millistre of the dulution of form and different quantities of the antitorin being tested. A further mixture is made so that 2 millistres contains 1 millistre of the dult tion of form and 2 Units of Antitorin. The total volume of each mixture is adjusted by dultion with plying logical solution of sodium chloride, or other appropriate saline solution.

The mixtures are allowed to stand at room temperature for thirty minutes A dose of 0.2 millistre of each mixture is injected into each of 2 guines page under the conditions described in the determination of the test dose (Lr/5) of toxin

The maxture of the antitoxin being tested which contains 0.2 Untain to 2 millatire is that maxture which produces the same degree of necrosis as that produced by the injection into the same animal of the maxture which contains in 0 millatires the test does (Lr/5) of the toxin and 0.2 Unit of Aut toxin.

Limits of Error -The limits of error (P = 0 99) are 85 and 114 per cent

(c) By intracutaneous injection into rabbits

The method is the same as that described in the preceding paragraph (D (b)) except that 0.2 millitize of each mixture is injected into rabbits under the conditions described in the determination of the test dose (Let/5)

Limits of Error —The data at present available do not permit of a sufficiently accurate determination of the limits of error, but the limits are not wider than the limits of error for the test by intracutaneous injection into guines pigs.

(d) By intravenous injection into mice

Mixtures are made so that 0.5 millihite of each mixture contains the test dose (L₂) of the toxin and different quantities of the antitoxin being tested. A further mixture is made so that 0.5 millihitre contains the test dose of the toxin and

1 Unit of Antitoxin The total volume of each mixture is adjusted by dilution with physiological solution of sodium chloride, or other appropriate saline solution

chloride, or other appropriate saline solution.

The mixtures are allowed to stand at room temperature for thirty minutes. For each mixture a group of 6 mice is selected, and 0.5 millilitre of the mixture is injected into a

tail vein of each mouse The mice are thereafter observed for three days

The maxture of the antitoxin being tested which contains 1 Unit in 0.5 millilitre, is that maxture killing some but not all of the mice, which kills the same, or most nearly the same, number as the mixture which contains in 0.5 millilitre the test doss (L.) of the toxin and 1 Unit of Antitoxin.

Limits of Error — If the preparation being tested is given in doses differing by 10 per cent to groups of 6 mice, and if the Standard Preparation is given to 6 mice, the limits of error

(P = 0 99) are 92 and 108 per cent

(e) By intraperitoneal injection into mice

The method is the same as that described in the preceding paragraph (D (d)) except that the mice used for the determination are injected intraperitoneally

Limits of Error —If the preparation being tested is given in doses differing by 10 per cent to groups of 6 mice and if the Standard Preparation is given to 6 mice, the limits of error (P = 0.99) are 87 and 115 per cent

APPENDIX XVI

A METHODS OF STERILISING SOLUTIONS FOR INJECTION

Page 631.

delete lines 5 and 6 .

insert 'A solution to be sterilised by Tyndallisation is prepared by aseptic methods and distributed in sterilised containers, which are then sealed and heated.".

C TESTS FOR LIMIT OF ALKALINITY OF GLASS

Page 634,

delete lines 27-31;

meer "Strong Solution of Methyl Red desolve 0.0 grammo of methyl red in 75 milhitres of alcohol (35 per cent), add 15 milhitres of N/20 sodum hydroxide, or a quantity sufficient to adjust the solution so that the colour corresponds to about pH 5 2, and dulut with water to 100 milhitres".

APPENDIX XXI

WEIGHTS AND MEASURES OF THE ERITISH

PHARMACOPŒIA
Page 639. after line 11.

where "1 microgram (y) = The 1000th part of 1 milligram".

after line 25,

ensert "I Millimicron (m μ) = the 1000th part of 1 micron ".

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Hydroxides oxides and salts occurring only in the Appendoes are indexed under the names of their metals Synonyma appear with cross references

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